

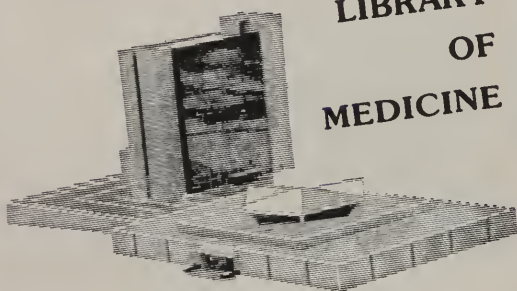
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OHIO STATE MEDICAL SOCIETY.

TOLEDO, O., JUNE 16-17-18 1874.

REPORT

ON

General Paralysis,

BY

D. A. MORSE, M. D.,

OF

LONDON, OHIO.

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REPORT
ON
GENERAL PARALYSIS,
BY
D. A. MORSE, M. D.,
LONDON, OHIO,

Report on Monomania,

—BY—

D. A. MORSE, M. D.,

OF LONDON, OHIO.

Is there a MONOMANIA? Is there a *mania without delirium? without delusions?* An *Instinctive Mania*? Is there a *Reasoning Mania*; the *moral insanity* of Prichard? How are *instinct* and *intellect* related? Can a man be *insane* as to one idea, or fact, and *sane* as to all others? Can a man be insane as to *instinct* and remain sane in intellect? Is *delusion* a test of insanity? Is "*Knowledge of right and wrong*" a just and sufficient test of *responsibility*?

Gentlemen of the Ohio State Medical Society:

Last year I directed your attention to a condition, or disease, alleged by many writers to be entitled to rank as a form of insanity, and which is, viewing it from their standpoint, of sufficient importance and distinctive characteristics to be designated a *monomania*, by name: DIPSOMANIA.

The views of any one writer upon the subject are brief, scattered, yet I collected them; presented my theory; and awaited the verdict of those who had given the subject special attention. The reception it met with is sufficient evidence that my labor was not fruitless.

The subject of Dipsomania involved many questions not considered in that Report; questions that are of great importance, and upon which many views there entertained must rest. These questions are the foundation of all theories that attempt to maintain the existence of a monomania, or to explain it.

GENERAL PARALYSIS.

A CRITICAL REVIEW OF THE LITERATURE OF THE SUBJECT ;
TO WHICH IS APPENDED AN ANALYSIS OF THE CASE OF
JOHN S. BLACKBURN, IN WHICH INSANITY WAS ALLEGED
AS A MEANS OF DEFENSE.

BY

D. A. MORSE, M. D., LONDON, OHIO.

" Medical testimony when of any value, can be little else than a reference to authority."---Prof. Chas. A. Lee, Notes to Guy's Forensic Medicine.

GENTLEMEN :

The application of Medical Science to serve the ends of Justice, to the interpretation of Criminal Law and Procedure, *i. e.*, to the "tests" of responsibility for crime; and to determine crime itself, requires a special knowledge—a special training—an extended experience in all that pertains to the subjects considered by writers upon Medico-Legal Science.

No one sitting in the quiet of his study, with the multitude of the works upon insanity before him, versed in their contents however well he may be, no one in the whirl and commotion of busy every-day life, as a medical man, however great his experience; no one familiar with the great institutions where the management and treatment of the insane calls for a thorough knowledge of the symptoms, progress, pathology and therapeutics of insanity; no one, to go even further, who may add to all these attainments a theoretical knowledge of Medico-Legal Science, *can fully appreciate*, until he has been called upon to

assume the duties of such position, the *wants* of one who attempts to work up the details, in evidence, analyze the facts, fit and adjust them to a proper conclusion, crystalize them into an "opinion," if you please, in a case where alleged insanity, *although actually existing*, must be shown by a "preponderance of evidence," or "beyond a reasonable doubt," or as sometimes held, "must be clearly shown" to exist, which opinion will extend to and embrace all the ingredients of homicide, relieve from responsibility, and thereby excuse apparent crime.

To any of the aforementioned purposes, or relations of the medical man, aside from the last, the question of responsibility does not arise; the *mental capacity to conduct a rational defense*, to form a deliberate purpose, to commit an act with intent, malice and premeditation, are not questions of fact that one in the situations named will be likely to be called upon to determine; nor will one in the simple capacity of a medical man, with the same degree of mathematical precision, be required to make as thorough analysis, as critical an examination of symptoms, as exact a classification as to the *form* of insanity, as when the life of an individual, the character, reputation and social interests of a family are thereby imperiled.

For all purposes, to the medical man, insanity is a physical disease. He looks upon it as he would any other disease that he may be called upon to treat; he does not shroud it with mysterious obscurities, inquire whether the man is a free moral agent, whether he has will power sufficient to enable him to resist temptation, but regards the mental phenomena only as indices of existing pathological conditions; his brain is not confused with what may be said, *pro* or *con* "*irresistible impulse*," "*insanity without delirium*;" or what Lord Coke, Hale, Blackstone, or any one else may have said or thought of the "tests" of responsibility, civil or criminal; he does not consult authors to

determine whether the action of jalap is modified by the inability of the patient to distinguish by his moral sense, "right from wrong," or to determine how much hydrate of chloral will outweigh an illusion or hallucination, before it produces sleep; but the necessity for therapeutical knowledge, medical skill, a clear diagnosis and rational prognosis, are rested upon the same foundations in pathology, whether mental phenomena are or are not interpreted by a predetermined, despotic legal criterion.

The medical expert, or *skilled witness*, is called upon to hear facts stated by common witnesses, whose expressions are colored by passion, by prejudice, by sympathy, by public opinion, by family relationship and self-interest; or what is much more embarrassing to him, well knowing that seldom are all the facts included, nor can they be as they would be viewed by a medical man unless all the evidence be included, in many cases; the superficial knowledge of the medical witnesses having led to superficial examinations, all the essential facts not being drawn out, yet upon these is he required, a hypothetical case being presented, the expert confined to the case constructed, without the evidence before him, without an examination of the defendant, to explain to a jury facts thus submitted, and is expected to systematize and organize the chaos, however incomprehensible, imperfect, or disjointed the hypothesis.

The expert who has a well digested, well arranged knowledge of the subject, readily forms what *to him* is a satisfactory opinion, and if opportunity has been afforded him to examine the defendant, has his opinion fully confirmed, not only by an observation of conditions stated in evidence, but by seeing in the appearance, expression, demeanor or action of the patient what no witness can describe; yet however firmly he may be convinced of the correctness of his views, however clearly he may express them before the jury, however plausible they may seem to the

counsel upon either side, they may be questioned, and counsel ask that they be confirmed by a reference to authority. The witness is asked to "name some authors who entertain similar views," or if certain authors mentioned are not good authority, the counsel intending afterwards to read from them. The expert declares them good authority, but is mortified when the case is argued to hear read from these very books statements that contradict every view he has expressed. He has declared them to be good authority and in the main they are, but the expert experiences only when too late to remedy it, the fact, that no matter what the view taken, unless qualified in some manner, it can be contradicted, and he thrown into confusion by a reference to the books. *Counsel have no right to read books that have not been submitted under the oath of medical experts as authority*, otherwise why should experts be called, or why should not counsel read conflicting opinions from authors and have the jury to determine what is and what is not authority. The expert is called to declare what is accepted by his profession as *authority*, and when called upon to cite authority should not state as authority that which has been exploded, but the most recent views and developments of the subject. One expert bases an opinion upon those early teachings imbibed when medical science was as yet in its infancy, yet presents it with all the force and weight of more extended modern research. Another who feels the full responsibility and difficulty arising from the position, who feels that he must echo truly authority, is cautious, deliberate, more *reserved*, if not embarrassed; and although he incurs the risk of being considered unqualified, by the ignorant, is more correct, and although he may not *argue the case*, as I have seen frequently done by experts, who evidently were called to make a case rather than tell the truth, he is for science the best champion and in competency and reliability, the best witness. With a clear

knowledge of what authors state he feels the full force of the responsibilities resting upon him, and is the much more reserved as he feels that authorities conflict and the difficulty of showing *what is authority* gradually forces itself upon him. His knowledge has been the steady growth of time, the result of long years of patient study and reflection, of perfect digestion and assimilation of what he has read and observed; and it is as it were by intuition he forms his opinion. He flies from author to author to find that while one confirms his pathology it ignores his classification; that while others approve his classification many others perhaps deny as a special form of insanity that which he has designated, and perhaps others declare it a disease but not insanity at all.

One must experience much of this, if not all, who after having made a thorough examination of John S. Blackburn, attempts to work up the details of evidence, from it alone to gather all the facts, before he has concluded an elaborate opinion that shall exhaust such facts and give them due significance and place in the structure he erects; and he will feel that much is wanting that he would desire expressed.

To my mind no duty a medical man may be called upon to perform equals in degree of responsibility that of the expert, and in no one thing are our medical institutions, in many instances, more remiss than in their failure to teach medical students how to apply their knowledge to practical purposes, and in the manner they ignore this essential branch of a college *curriculum*. No man can be a thorough student of Medical Jurisprudence without receiving new impetus—new motives, a higher sense of duty, a higher appreciation of medicine as a science.

Without further consideration of this at the present time, I desire to end the already too lengthy introduction to this Report

by an extract from one of my lectures, delivered January 3d, 1870, as an introductory to a course in Indiana Medical College, Indianapolis, Indiana, upon Medical Jurisprudence and Insanity, entitled: "THE DUTIES OF THE MEDICAL WITNESS AND HIS PRIVILEGES." After enumerating the objects and end of this Branch, the various duties of the medical witness and his privileges, the lecture concludes as follows:—

"You have, gentlemen, by this time concluded, that the duties devolving upon you as a medical witness are not such that you should ardently desire to perform them; but as sooner or later you will be called upon, if found qualified to fill them, I hope and trust that you will bear in mind their importance, and the fact that without a thorough acquaintance of all the authorities a witness is not fully qualified to give an opinion upon questions involving scientific knowledge. I frequently see men called into court to give evidence in cases of insanity, who never possessed or ever read a single volume upon insanity during all their lives; they could not under any circumstances give you a classification of insanity, yet courts admit their evidence unquestioned. It is a question, whether one half who testify in county courts, could give a list of different works upon medical jurisprudence or insanity, to say nothing of what these works contain. The masses judge the expert by his *presumed* experience. *The counsel select witnesses rather for their influence upon a jury, than the development of truth.* Experience teaches, *but experience alone teaches little that is valuable*; for the mind of man is so constituted that passion and prejudice blind his judgment, and resting alone upon his own observations he is as liable to err as he is to conclude correctly.

"Smith in his Analysis of Medical Evidence, says, 'It is very possible, therefore, that he who depends upon his experience may be inferior, as to his knowledge and experience, to the dili-

gent student ; for an accidental observer may be unqualified to make use of his opportunities while the other may acquire much information, without going beyond the labors of others. The man of experience has to labor single-handed, *as much as all the others put together*, ere he can equal them in pretension ; while the student again may have opportunities of experience to a minor extent, but will make a vastly better use of a few than the uninformed can of many. *Presumed* experience, for that is certainly what the word in its ordinary use must be restricted to, is in a great measure accidental ; it must fall to the share of different individuals in different forms and degrees. I believe that no small portion of that odious discrepancy which has prevailed among medical witnesses whereby the luster of medicine itself has been so much tarnished, is chargeable to the prevalent affectation of being men of *experience* rather than men of *learning*, to the over anxious wish of being extensively employed rather than solidly instructed and properly qualified."

"Prof. Chas. A. Lee, to whom we have so often referred, presents in few words the true feature of the subject. He says, (page 20, notes to Grey): "How often do we see medical men of scanty experience priding themselves upon their experience, and disparaging all knowledge derived from books, and by so doing demonstrate alike their ignorance and want of sense ; for what is *individual* experience at the best when compared with all the vast stores accumulated by the sages of the profession of all ages. It is but a drop of water compared with the ocean, a moment of time with eternity. PERSONAL EXPERIENCE UNLESS ENLARGED, IMPROVED AND CORRECTED BY THAT OF OTHERS IS OF LITTLE VALUE. MEDICAL TESTIMONY, WHEN OF ANY VALUE, IS BUT LITTLE ELSE THAN A REFERENCE TO AUTHORITY."

In presenting a review of the Literature of General Paraly-

sis, I am conscious that I have no ordinary task to perform, of my own inability to perform it as justice to writers and to the subject requires. To follow the multitude of writers upon the disease through the expensive and almost inaccessible works containing their views, to seek out these views often under the vague and obscure names with which they have seen fit to designate the disease, concealed many times in works bearing no relation to the disease, and in treatises upon other subjects, as *Heredité*, *Suicide*, &c., but few of which works are found in the English language—to bring all these together—express them correctly—and in one continuous article reflect them as it were in a mirror, is a labor from which I shrink; yet when I consider that if well performed no work can be more desirable, will be more acceptable to those versed in the subject, or who have made it a special study, I force myself to proceed, and will endeavor to present in as brief a manner as will be consistent with the faithful performance of this duty, the merits of the Review, the interests of the reader, and a true expression of those authors' views herein represented, *the present Knowledge of General Paralysis*.

Before entering upon a consideration of the various details of symptoms, duration, progress, pathology, &c., I shall briefly notice the views of those writers who described the disease prior to 1826, for this reason: they had no well defined knowledge of the subject, regarded general paralysis as a *complication* of insanity, as something *superadded* or as a *special form of paralysis*, having no connection with the mental phenomena.

The views of these writers are of the highest value and utmost importance, in inducing a thorough consideration of the disease under every possible aspect, in viewing it from many different standpoints; they also attest the fact that although a common condition in public asylums, yet like many other dis-

eases when first noticed by authors, it was but imperfectly described, the accounts of it being crude and very brief; but also, that each succeeding writer carried the study one step in advance of those who preceded him—the present knowledge being a gradual, progressive development of the subject, the first being as the early, faint, glimmering rays of the rising sun which in due season will come forth in full splendor.

HISTORY OF GENERAL PARALYSIS.

Marcé informs us, and also other writers, that the first writer who called attention to general paralysis was Haslam, in 1798. He spoke of the frequency of insanity as a cause of paralytic affections. He remarked that these persons have exalted ideas of pride, that they are incurable, that they fall into imbecility and marasmus, and die suddenly of apoplexy.

Esquirol, in 1805, characterized the affection as an incurable form of insanity *complicated* with paralysis. He uses in different works the same language. In *Des maladies mentales*, T. ii, 46, and *Dict. des sciences médicales*, T. xvi, p. 211, he speaks as follows concerning the relation of paralysis to dementia: "When paralysis complicates dementia all the paralytic symptoms appear in succession; first the articulation of sounds is difficult, soon after locomotion is executed with difficulty, the arms are moved with labor; at length the dejections are involuntary, etc. All these *épiphénomènes* ought not to be taken as symptoms of demency, more than the signs of scorbutus which often complicates this disease."

Thus the *dementia* he regards as expressed in the intellectual phenomena, and all physical symptoms as complications, or as he terms them: *épipénomènes*, or additions not essential to the

existence of dementia. This we fully discuss when we consider the nature and pathology of the disease.

Esquirol divides demency into acute, or chronic, simple or complicated, continued, remittent or intermittent. On page 66, vol. ii, *maladies mentales*, he says: "demency may co-exist with lypemania, mania, epilepsy, convulsions, scorbutus, *and above all with paralysis*. Complicated demency is incurable.

* * * The complication of mental diseases, with lesions of movement, resists all curative means and leaves no hope of long duration of life. These facts I declare, which we also read in the works of Calmeil, Bayle, Guislain, &c., confirm too well this mournful truth. The first I called attention to this phenomena, 1805, I showed the incurability of insanity complicated with paralysis. *This paralysis is often the sign of a chronic inflammation of the meninges*, and ought not to be confounded with paralysis, consecutive to cerebral hemorrhages, cancers, tubercles, softening of the brain. *It shows itself some times with the first symptoms of delirium*, during the acute period so remarkable at the onset (debut) of almost all forms of insanity. *Sometimes it precedes the delirium, sometimes it comes as a kind of adjunct to it. At first it is partial*, then it invades a great number of muscles and becomes general."

Esquirol seems to have overlooked the fact that the pathological changes induced both the mental and physical phenomena. The study of insanity from a physiological, and anatomio-pathological standpoint, as well as metaphysical, guards against these errors so common with early writers who regarded only mental phenomena in studying insanity, and based their classifications upon the predominant features of these phenomena, leaving pathological conditions and physical symptoms unconsidered, or to be explained on separate principles.

That Esquirol thus erred, no one can, with the light of the

present day, dispute. In a controversy with Dr. Burrows he defines his views so clearly no one need mistake them. He says: "Dr. Burrows appears to believe that I regard the paralysis of the insane as the *effect* and not as the *cause* of the insanity. I said nothing of the kind; I am satisfied to designate the paralysis as a frequent *complication* of insanity, and as rendering more unfavorable the prognosis."

Georget, a pupil of Esquirol, conforms to a considerable extent in his views to those of Esquirol. He does not, however, consider the physical symptoms as complications, but regards the lesion of motion as constituting a *special species* of paralysis, and gives it the name of *paralysie musculaire chronique*.

Georget regards demency and the paralysis as two distinct affections. Esquirol says that paralysis may complicate all forms of insanity; thus we have mania with paralysis, melancholy with paralysis, dementia with paralysis, &c.

We prefer to say that there are two features that may predominate, or characterize the mental phenomena in general paralysis: *exaltation* and *depression*, and that dementia may be the termination or result in either of these. These writers say *dementia* may complicate all forms of insanity. It is for this reason that such endless confusion arises in the literature of insanity: cause, phenomena, effect, pathology, are all confounded, all mingled and commingled until no man can comprehend what is the view of the writer upon any given point; and renders it much more probable that the writer cannot himself.

The obliteration of the mental faculties from whatever cause, constitutes dementia—no matter whether from shock, nervous exhaustion, cerebral disease or other cause. When there has been mental development and loss of the intellectual faculties is consecutive to disease, there is dementia. Idiocy is the *congenital* want of mental capacity; imbecility is the arrest of devel-

opment at some period during infancy or childhood. If these distinctions were preserved there need be no confusion; but when one writer says an aged man has by disease been reduced to imbecility, another to dementia, another to idiocy, what are we to understand by the terms? Simply that he does not comprehend their signification and use.

Dementia is not a real mental state, but the absence of mental power, a negative condition, the lifeless body that remains when mind has expired, "the ashes that remain in the socket when the candle has burned out," "the tomb of the mind," "the last infirmity of noble minds."

Dementia may follow all forms of mental disease, *but complicates nothing*; it exists to such extent and degree as loss of mind is manifest. We might with equal propriety say that in a given case there is *pneumonia complicated with death*, as to say that melancholy or mania is complicated with *dementia*. True, you may say there is *partial dementia*, that dementia begins long before it is fully manifest, that it may never be complete. Is this not true of the body, of physical death?

Georget says: "Demeney terminates all forms of insanity which become incurable, provided that the patient lives long enough for this transformation to take place, which almost always is the case. The disorganization which produces this mental state causes at the same time in more than half of the cases, another nervous disease, *muscular paralysis*, either general or partial."

In other words *two diseases* are the result of the same disorganization of structure: loss of *mental* and loss of *physical* power; the intellectual death he calls *dementia*; the physical, *general paralysis*.

He is the first writer who fully described the essential symptoms, and divides the disease, in its progress, into three degrees.

FIRST DEGREE.

"The paralysis commences almost always by declaring itself in the muscles of the tongue; very often it remains confined there a long time before extending elsewhere. The patient shows difficulty of speech, pronounces badly, or slowly the words, stammers more or less; the tongue thrust from the mouth is not drawn more to one side than the other, and seems generally affected. Other phenomena are soon joined to this. If the patient can give an account of his condition, he complains, *may be of one side only*, or of both sides at the same time, of numbness in the extremities, a feeling of pricking, of formication in the hands, the feet and along the tracts of nerves; pains in the head more or less general, sometimes more or less circumscribed, and ordinarily *upon the opposite side from the paralysis*, sometimes nevertheless the same side; movement becomes less easy, slower; the patient ends by being able to serve himself no longer with but the members of one side. All the other functions may be regular, digestion above all very good, fat is not diminished. This first degree may last a long time, *many years*, without the general health appearing to suffer.

SECOND DEGREE.

"The patient is entirely paralyzed upon one half of the body, or both; he can neither walk or hold himself erect. He is forced to confine himself to the bed continually; he can pronounce but few words; intelligence is annihilated. Fat does not yet disappear; digestion is good. The signs which indicate chronic irritation present themselves ordinarily at this period; the pulse shows frequency, hardness; in the afternoon the cheeks color up; there is thirst. This second degree may last some months, a year or more.

THIRD DEGREE.

"This degree comprises all the last months of existence of the patient. It is characterized by increase of the paralysis to such an extent that these patients are but inert masses. They are deprived of color, pale and lean. The appetite is lost, there is either flux or obstinate constipation, and at length death ends the troubles. The intelligence is abolished early; paralytics remain sometimes a year or more without uttering a word, without asking that their wants be satisfied."

Delaye, in 1824, *Considerations sur une espèce de paralysie qui affecte particulièrement les aliénés*, p. 5, added to the name given by Georget, the word *incomplete*, terming the disease, *paralysie general incomplete*. His reasons were that it was but seldom the extremities were completely paralyzed. He regarded it as a special species of paralysis. He gave also the differential diagnosis between it and other forms of paralysis; and after mentioning some of these differences, says: "Other differences still separate it from these last; thus it affects all the muscles of locomotion. Its invasion is slow, its march always progressive, its termination always bad; at length, the organic alteration which produces it consists in a modification of a particular kind of the cerebral substance. The other forms of paralysis, on the contrary, are ordinarily confined to a part of the body; their invasion is more or less rapid, their progress is sometimes arrested, they retrograde or remain stationary; many recover; at length they depend upon the disorganization or the loss of a part of the cerebral substance. I will add to this that the forms of paralysis which differ the least from the disease in question, those, for example which have for a cause the development of a fungus of the *dura mater*, a

cancer of the brain, &c., have well known signs that characterize them."

Delaye described the form of paralysis considered by him as an affection separate and distinct from insanity; he attempted to show that it was not entirely confined to the insane; he detailed its progress, and gave as a characteristic feature of the mental state, at its appearance, weakness or loss of memory. He regarded it as incurable, and designated as causes, organic changes of the brain, softening, hardening or atrophy, with adherence of the meninges. His table of symptoms comprised only those pertaining to lesion of motion. His chief attention was given to the physical phenomena. Bayle, a writer of the same period, in three different works presented his views of general paralysis: 1822, *Thèse sur l'Arachnitis*; 1825, *Nouvelle doctrine des maladies mentales*; the third, in 1826, *Traité des maladies du cerveau et de ses membranes*. This last appeared the same year Calmiel brought out his work, *De la paralysie considéré chez les aliénés*,

Bayle presented a more correct account of general paralysis than any writer who had preceded him.

He does not, as Esquirol, regard the paralysis a complication, nor as Georget and Delaye a disease separate and distinct from insanity. He did not regard general paralysis as a special paralysis, but as a mental disease; and after the anatomico-pathologic condition, designated it *arachnitis chronique*, in 1822, but later he termed it *monomania ambitieuse avec paralysie*. In his work of 1826, he divides the course of the disease into three periods: 1st Congestion: ambitious monomania with incomplete paralysis; 2d Mania: inflammation of the meninges; 3d *dementia* with general paralysis more marked, due to serious exudation, and a considerably greater weakening of the intellectual faculties, with convulsive movements and epileptiform attacks.

The chronic inflammation of the meninges is the essential anatomico-pathologic character of the disease. He considers the meningitis the cause not only of the paralysis *but of all mental alienation*. Had he confined this to general paralysis the error would not have been so apparent; but no one will accept this last assertion as correct.

We do not agree with these writers upon many points; thus Delaye gives as a differential diagnosis, that other forms of paralysis may be cured, remain stationary or retrograde, we will see that general paralysis frequently when begun is arrested, sometimes for years, the patient apparently having recovered. We do not accept the *monomania des grandeurs* as being the *specific* delirium; of general paralysis, in fact it has no *specific* delirium, we do not regard the paralysis a *complication*, an *epiphenomenon*, or a *special form of paralysis distinct from the mental state*. We regard the disease as a unit with two orders of essential symptoms: Physical and Mental; both dependent upon structural lesion.

Bayle regarded lesion of intelligence and of motion as constituting one disease. He says, p. 40: "The symptoms of *chronic arachnitis* all can be reduced to a general, incomplete paralysis, and a derangement of the intellectual faculties; these two orders of phenomena advance with an equal and proportionate step, and divide the disease into three periods. In the first articulation is sensibly embarrassed, walk unsteady; the disorder of intelligence manifests itself by weakness, a monomaniacal delirium, which to a greater or less extent rules the patient, and often by a state more or less considerable, of exaltation.

"In the second period the motion of the tongue and other members preserve often the same embarrassment as in the first, or become more difficult; the delirium maniacal and general, frequently attended by ruling ideas; there is agitation, from the

loquacity and mobility which causes the patient to continually change place even to furor the most violent and incoercible.

"The third period is in general characterized by a state of demency, an increase of the general and incomplete paralysis: the speech is hesitating and trembling, very difficult and sometimes unintelligible; the step is vacillating, tottering, or even impossible; the excretions are involuntary; the intelligence extremely weak, preserves but a small number of ideas which are completely incoherent, sometimes vague, *sometimes more or less fixed*; the most frequently the patient is calm with from time to time an agitation more or less great. This period terminates itself sometimes by an almost complete paralysis of all voluntary motion and a state of complete idiocy. Every patient presents not the three distinct periods: it is not rare to see the second wanting, sometimes the second presents a continued or periodic spasmodic agitation; during the third there supervenes often attacks of congestion of the brain, attended with loss of consciousness, and sometimes with convulsive and trembling movements, followed by an increase of symptoms of the disease and sometimes epileptiform attacks.

"This disease appears with a state of ambitious monomania, and an exaltation more or less great, which united to a light paralysis, incomplete and general, characterizes this period. The affected imagine all at once that they are rich, powerful, raised in dignity, covered with distinctions and titles. One believes his fortune doubled, tripled, quadrupled, centupled; another forgets the state of misery in which he found himself at the onset of the insanity, thinking no longer but of imaginary treasures. They make gigantic projects which are to bring them immense sums; they buy all that they see, they are occupied only with acquisitions they ought to make.

Ruled by these ideas they speak of them incessantly and

think of nothing else. Their prattle is inexhaustible; they heat themselves up in speaking and are easily angered by a contradiction of their extravagant ideas. Their face is, in general, red, cheerful, and expresses the satisfaction and joy of their riches and grandeur. They sing, laugh, and are in a remarkable state of hilarity and gayety. They give a reasonable response to questions foreign to the object of their delirium."

Here one form of delirium is described, the *ambitious*, and no mention made of a depressive variety. He sums up his views concerning the lesion of motion: "The general lesion of movement is not a complication, an epiphenomenon nor an accident of demency; there is not with paralytic demency *two* diseases, but two orders of essential symptoms concurring with the same degree to characterize one only and the same morbid entity—*general paralysis*."

The paralysis is general; thought, sensation, and motion, all are involved.

Having now considered to as great length as our space will permit the views of those writers whose works appeared previous to 1826, we are prepared to further consider the disease.

As it is the disease in question we desire to write upon, and not the writers, further than as they furnish us knowledge of the disease, we will consider hereafter each point pertaining to the disease as a separate division of our subject. The authors' views we have presented could not well be brought under these divisions and still give them their respective merits for original observation. They will never cease to be referred to by writers who desire to express a full knowledge of the subject. Without a careful consideration of them we are unable to trace to their origin many theories entertained to-day, and to explain many views that otherwise are incomprehensible.

We shall consider General Paralysis as follows :

I. NAME: What shall we call the disease in question?

II. AGE and SEX: With *whom* and *when* does it appear?

III. IS IT HEREDITARY?

IV. INCUBATION: PRODROMIC PERIOD; perversion of moral faculties.

V. DIAGNOSIS: Course; Duration and Termination; Prognosis.

VI. PATHOLOGY.

I. NAME: What shall we call the disease in question? We prefer to designate the disease GENERAL PARALYSIS. Writers have given names corresponding to their views of the nature, pathology or particular character of the disease, as they have viewed it from a physiological or a psychological standpoint. These names are: GENERAL PARALYSIS; Paralysis of the Insane; folie paralytique; paralytic demeney; demeney with paralysis; périencephalite chronique diffuse; méningite; encéphalite diffuse; paralysie progressive; paralysie musculaire chronique; paralysie générale incomplete; méningite chronique avec alienation; meningo-encephalite; GENERAL PARESIS.

General Paralysis expresses with sufficient accuracy the nature of the disease; if we desire to express the predominant features of the mental phenomena, say general paralysis of *expansive*, or of *depressive* form, as one or the other of these states may predominate; expansive or depressive general paralysis; expansive or melancholic general paralysis.

II. AGE AND SEX: With *whom* and *at what age* does it occur? Writers state that general paralysis is observed much more frequently with men than with women. Esquirol says: "insane women are rarely paralytic. The insane men and

women in hot climates, in the South of France and Italy, are rarely paralytic; nevertheless ambitious monomania shows itself at Paris among the insane females; this monomania is not rare in the South of France and Italy among both sexes." Griesinger, *traite des maladies mentales*, 467, says: "All authority agrees that paralytic insanity is infinitely more frequent with men than with women. Calmeil found among 15 insane men 1 paralytic; among 50 insane women, 1 paralytic; Bayle, at Charenton, found paralysis eight times more frequent with men than women."

Foville observed among 334 insane, 31 paralyties, of whom 22 were men, 9 women; Hoffman observed 138 men to 18 women who were paralyties. Of 2700 insane at Leubus, 379 were paralytic men and 82 paralytic women; Duchek observed at Prague 63 men and 6 women; at Stephensfeld, the number given is of men, as one to six of the insane, and one to twenty-six of the insane women.

Marcé *traité des maladies mentales*, 470, says: sex exercises a singular influence upon the production of the disease; while it is very frequent with men it is very rare with women. Of 86 cases of general paralysis noted by Parchappe, 70 were men and 16 women; Calmeil, of 82 cases, 73 were men, 9 women."

All authors do not agree fully with these statements, but declare that when circumstances and conditions under which cases are noted are observed, the difference is less apparent. Bailarger says the relative proportion of men to women is greatly modified when we take the poorer classes into consideration as well as the rich, in France, the number of paralyties being much greater with the poorer classes than with the rich. The statistics from hospitals usually given, are from private institutions, and those where the rich and middle classes alone enter. Griesinger says, general paralysis is nowhere as frequent as

at Paris. Esquirol replied to a similar statement made by Dr. Burrow's as follows: "Dr. Burrows declares there are not as many paralytic insane in England as in France. Burrows attributes the increased number in France to bad management, bad atmosphere, &c. * * * * I know all the importance we ought to attach to hygienic causes in the production of disease * * but I make the remark that in treating of the paralysis of the insane I speak of the paralysis which manifests itself before the admission of the insane into the establishments;

* * they have not fallen into this state during their sojourn in these establishments, but they were paralytics before entering there. I am convinced that when they know how better to distinguish the symptoms of paralysis which complicate insanity, they will find in England, and particularly at London, as many paralytic insane as at Paris."

Marc, T. i, 272, says: "There is an accident which in the Northern more often than in the Southern climates, more common with men than women, complicates demency. I wish to speak of paralysis, the development of which is gradual. The articulation of sounds, locomotion, movement of superior extremities, are executed only with more or less difficulty; evacuations become more or less involuntary. These symptoms, which we call general paralysis, the paralysis of the insane, ought not to be considered inherent to demency, not only because that it is not found with the demented always, but because the paralysis is not always in proportion to the intensity of this form of alienation. This epiphenomenon merits always great attention; for it can be overlooked at the onset, yet it plays an important part in the diagnosis of a mental disease."

We have quoted this at length for reason that it is all that Marc says of general paralysis; it contains his views so far as expressed, upon all points.

We see from the above that sex exercises a great influence in determining the relative proportion of the number of the sexes affected. It is not however so much attributed to the *sex* as the character of the occupations of the two sexes; determined by sex and by exposure, excesses &c., even sexual excess having a more exhaustive influence upon the male than the female. It is very interesting to consider fully the operation of *causes* in determining the disease with the two sexes, but we will not further consider it.

AGE. We will briefly consider the influence of age. Calmeil, *traité des maladies inflammatoire du cerveau*, T. I, 270, says: "Age exercises a notable influence upon the rarity or frequency of *perienéphalite chronique diffuse*. I do not remember that I ever observed this disease before the twenty-second year of life; it has appeared to me still rare at from twenty-three to twenty-six years; it increases rapidly in frequency from twenty-seven to thirty-five, continues to be very common from thirty-five to fifty-five years, and afterward diminishes in frequency to sixty-five years, an epoch of existence, where it is often replaced by interstitial encephalitis of circumscribed limits."

The books abound with tables of cases, occurring at various ages—they confirm or accord with the above statement; it is therefore unnecessary to copy them.

III. IS GENERAL PARALYSIS HEREDITARY? In forming a diagnosis, all other points being settled, this may assume importance. Thus, in the Blackburn case, reported in the Clinic, by Prof. Carson, it is given as an evidence that B.'s disease is not general paralysis, because his disease is hereditary—general paralysis not hereditary.

The voice of authority is that the disease is hereditary ; and not the disease as disease, but the tendencies and conditions of nerve organization which induce it, or so predispose that an exciting cause may bring into play these hereditary tendencies.

Calmeil, *maladies inflammatoires du cerveau*, T. I, 272, says: "More than one-fourth of the patients attacked with general paralysis count among their relatives, may be maniaes, may be melancholies, epileptics, perhaps persons affected with perincephalitis ; hereditary and the primitive conformation of the intra cranial nerve centers, exercise then upon the frequency of incomplete general paralysis an incontestible influence. Sometimes it is the father or mother, an uncle or an aunt, or cousin of those who become affected, who have shown anterior cerebral accidents. Sometimes both lines, paternal and maternal have been affected with cerebral disease. * * * We can boldly declare that one-third of the individuals with whom general paralysis shows itself have had relatives either insane or paralytic." Further on he says the erotic temperament furnishes more cases than any other. This propensity is however one of the *prodromes* of general paralysis. Several years before general paralysis is developed there may be seen with individuals excessive sexual desires, with almost uncontrollable impulses. General paralysis follows—we are unable to say whether the condition of the nerve centers determined the excesses, and the excesses the paralysis, or whether one is the prodrome and the other the fully developed disease.

Marcé says: "All forms of insanity, mania, melancholy, and partial delirium engender each other reciprocally and in a distinct manner. General paralysis itself, which by its symptoms, its special anatomic lesions, differs so notably from the pure neuroses of intelligence, finds itself among the ascendants or descendants of the insane with a frequency that proves in a

manner the most peremptory that it is but a branch of the same pathologic family."

Page 469 Marcé says: "Among the predisposing causes hereditary influence plays a grand *role*; and Calmiel is perhaps yet under the true estimate in saying that we encounter it in a third of the cases. Insanity and general paralysis are two branches of the same family, for among the relatives of paralytics we encounter indiscriminately not only paralytics, but maniacs, melancholics or epileptics, who succeed one generation to another transmitting tendencies to the identical root, or condition of disease; it is curious nevertheless to see these dispositions translated in one by simple neuroses, in others by a constant organic lesion of the nervous system."

Dagonet, *traite des maladies mentales*, 438, says: "*Heredite* seems to play an important part in the production of this affliction, and it is not rare to encounter in the relatives of those who are attacked individuals who have been attacked with general paralysis, individuals who have been affected with apoplexy, demency, diverse forms of insanity, epilepsy, &c. This disease is much more frequent with men than women—and rarely shows itself before the age of thirty." Luy's, *Des Maladies Hereditaires*, 66, Art. xii, *general paralysis*: "To speak of the hereditary influence of insanity is to speak in many cases of inherited general paralysis, since the greater part of the time the first phases of this terrible disease are indicated but by delirious conceptions of a special nature." Lucas, *Traite philosophique et Physiologique del' Heredite Naturelle*, Tome ii, 786, says: "But it seems above all to be hereditary in the highest degree (*i. e.* insanity), in demency complicated with paralysis. A notable part of the observations of Bayle, gathered under the name of *meningite chronique*, and where hereditary influence has been proved, present demency both with the ascendants and

descendents." Bayle, pages 83, 87, 115, 250, 300, 556, may be consulted with advantage.

Maudsley reports fifty cases of insanity of various forms, of which he says he labored to determine correctly the cause. Of these fifty cases, *nine* are diagnosed general *paralysis*; of these nine cases *four* are reported by him induced by hereditary influences, *four* by excesses, and of *one* he says "no insanity in the family *but the patient inherited a bad organization.*" In other words about one-half were hereditary.

If we go through the clinical reports of those writers who have given the subject profound attention, who have tried to determine the truth of what they report, we will find, if not so great a per cent. of cases, a large per cent. resulting directly from hereditary influence.

There can then be no question that general paralysis is as much determined by hereditary influence as any other form of insanity, and I am satisfied that authority, and cases reported, which are the best authority, will justify me in saying, that the peculiar character of the mental phenomena, whether of *expansive* or *depressive* variety, will be as fully influenced by the condition of the nerve centers of antecedents as in any other variety of insanity.

Maudsley says: "General paralysis is a disease which is usually the result of continued excesses of one sort or another; but it may unquestionably occur without any marked excesses, and when it does so there will be mostly discoverable a *hereditary taint* in the individual."

Some writers are silent upon the subject, so far as the hereditary influence of insanity extends in producing general paralysis, but if we examine what they say of demency we will observe they regard it hereditary, *i. e.*, the tendency of demency to be

come complicated with general paralysis, this being their view of the nature of the disease.

Hence, regarding the disease in all forms, under all considerations, we say *authority declares beyond dispute or controversy, that general paralysis may be inherited*, as the last degree of degeneracy transmitted by insane antecedents.

IV. INCUBATION, OR PRODROMIC PERIOD: *perversion of moral faculties*. The medical man whose acute perceptions enable him to foresee or anticipate general paralysis, when certain conditions are observed with an individual, may frequently avert threatened danger, crime and consequent disgrace, by recognizing early the prodromes of this fearful, incurable malady. And not only this we have stated, but the reputation of a medical man, the honor of the profession and medical science, are degraded by a failure to recognize what is plainly manifest, although it may seem trifling and unimportant, yet which eventually, perhaps too late, declares itself of infinite value as an omen of impending, unavoidable evil; but of which in many instances the serious consequences, by early recognition of the conditions, might have been avoided.

To the educated senses of a well informed medical man the fully developed symptoms of general paralysis are of no more interest, of no greater significance, than those that so unmistakably characterize the prodromic period. The reputation, *fame* we may say, of several eminent French alienists was due to their ability to foresee, and declare the coming storm, that later uprooted mind and vital power.

Maudsley, in his recent work: "*Responsibility in Mental Disease*," 72-75, illustrates well, as do Winslow and other writers, the necessity of early recognition of mental disease, and the importance of giving full value to prodromic manifestations.

Maudsley says; "There is one striking form of insanity in which mental symptoms of a tolerably uniform character are accompanied by symptoms of gradually increasing paralysis of the museular system, and which runs a definite course to a fatal termination; it is usual therefore, to make of it a *special class* under the name of *General Paralysis of the Insane*.

"An example will serve best to show how necessary to the formation of a right conclusion is observation *informed by experience*.

A man who has been hitherto temperate in all his habits, prudent and industrious in business, becomes indifferent to his wife, his family, the obligations of his position; his surprised friends see only the effects of vice, and grieve over his sad fall from virtue; after a time they hear that he is in the police court accused of assault, or of stealing money, or jewelry, and are not greatly astonished that his vices have brought him to such a pass. Examined by a competent physician, he is discovered to have a slight peculiarity of articulation and perhaps an irregularity of size of the pupils, symptoms which, in conjunction with the previous history, enable the physician to say with positive certainty that he is struck with a disease which, sapping by degrees his intellect and strength, will within no long time destroy his mental and bodily powers, and finally his life. Our knowledge is so exact that we can do what is the best test of a science—predict with certainty what will happen. The dissipation, speculation, and the theft itself were, as they often are, the first symptoms of general paralysis of the insane. Plainly, common sense without special experience could have small chance of coming to a right conclusion in such a case. The example will furthermore serve to show of what little service a classification by mental symptoms only is, and what little information we get when we are obliged to be content with

such a classification; for in the early stages of the disease it would be necessary to describe them as those of *affective* or *moral* insanity, and finally as those of *dementia*. Thus one patient might, in the course of a short time, run through all the classes of symptoms while suffering from one and the same disease. So plain is this, and so characteristic are the mental and bodily features of general paralysis, that all writers on insanity are agreed in making it an exception to the general rule of classification; they constitute it a class by itself, thus giving the strongest practical condemnation to a purely psychological classification."

In the prodromic period the patient is generally depressed, and melancholy, and even those writers who claim exaltation as the special delirium, expansion, when the disease is fully developed, declare that at this period there is, lasting a longer or shorter period, depression,—which may extend through the whole course of the disease, or briefly end at the onset. Griesinger says: "At the onset of general paralysis the intellectual disturbances present not always the same character. It is rare that we do not observe a melancholic period, which manifests itself sometimes as a simple depression, sometimes by very marked hypochondriasis, very rarely do we see supervene the first lesions of movement during this period of melancholy; nevertheless, as has observed Calmeil p. 328, this does occur, patients still having for some time melancholic delirium, which transforms itself into demency.

During the first period of the disease the character and manner of paralytics are very variable. At the onset the intelligence is generally less active and energetic, the thing the most frivolous afflicts and chagrins them. Among the prodromes we observe also from time to time a perversion of the affective sentiments and character, which manifests itself at times in a

sudden manner with those who enjoy their liberty and are occupied with their affairs, which oftentimes gives birth to medico-legal questions very embarrassing to magistrates: thus we see individuals commit improper acts * * * * are indecent in their behavior."

All will not show the same impulses, the same delusions, or manifest the same conduct. We would expect the passive victim of melancholy to be jovial and active, as the excited ambitious maniac.

Baillarger, *Appendix to Griesinger*, Art. iv, says: "Patients affected with general paralysis show often a long time in advance, several months, a year or more, modifications of character, which without being very marked are not the less important to notice. Some become irritable, passionate, susceptible, and cannot suffer the least contradiction. The relatives note these changes and are astonished at them, but it is very rare at the onset that they regard them as evidence of grave cerebral disease.

I saw recently an insane man who for three months was completely at discord (*brouille*) with his two brothers, as a result of an exaggerated susceptibility, resulting evidently from his disease. At the same time, before his two sisters-in-law, he observed the utmost decorum. No one suspected the change taking place; the delirium which showed itself a little later explained all.

Other patients are a prey to erotic ideas and deliver themselves up to little moral deviations that contrast strangely with their anterior conduct: ordinarily these ideas are not attended with any increase of virile force, but it may be otherwise and then some patients give themselves up to venereal excesses.

When demency is developed, the erotic ideas persist with complete impuissance; patients then talk obscenely and public-

ly commit acts in a manner that renders it necessary that great vigilance be exercised over them.

Propensity to theft is encountered often at the onset of general paralysis when weakness of intellect characterizes this period of the disease. Examples are numerous, and the thefts are of so little importance or so badly done that it should, although it does not always, awaken a suspicion of their state." Lclut reports cases where persons have been condemned for theft and this condition not recognized.

Many patients at this period, show a prolonged state of stupor, very decided and lasting at times many months. They often are inert and remain in a mute condition. This state attended by congestion of the face, with persons of from 30 to 50 years of age, and who have not had previously attacks of melancholy, ought to make us suspect the invasion of general paralysis. If the pupils are unequal and there are delirious conceptions of a melancholic or hypochondriacal nature the presumptions are strong.—*Baillarger*.

Marcé *traité des Maladies Mentales*, 416, says: "Several months before the invasion of general paralysis, we see manifested changes of character, of habits, which singularly astonish us and of which we seek vainly the cause. Sometimes there is an irritability that leads to violence and that is excited by the most trifling cause; sometimes on the contrary, a placidity, an apathy that renders impossible all serious occupation; or a perversion of the moral and affective faculties which prevents the subject from performing his duties; leading to acts of indelicacy, improbity, and of debauchery, that no precedent can make us foresee, and to which *Brierre de Boismont* has justly called the attention of medical men. The families afflicted by these acts attempt to repair the mischief done, the public scandals, but comprehend not the value of these modifications of

the moral state but when the malady has taken a turn more decided, and has entered upon its first period."

The monograph of Brierre, referred to by Marcé, we obtained from Paris, and find it full of satisfactory material confirming the views expressed; it is entitled: *Études Médico-légales sur la perversion des facultés morales et affectives dans la période prodromique de la Paralyse générale.*

On p. 4 we read: "One of the first and most constant intellectual disorders appreciable is the change of character which consists ordinarily in an irritability extremely great, in movements of impatience, wrath, violence. If the disposition has naturally this tendency, it takes a form more decided which awakes the attention of relatives and friends. This moral perturbation can last six months, one, two or three years, and offer no concomitant symptom.

In other circumstances, the derangement of mind is announced by extravagant conversation: an employée in contact every day, when at his place, with hundreds of persons, is invited to a wedding; all at once he holds the strangest discourse and presents a mobility of ideas nothing can fix—sometimes these are the acts which reveal the disorder of the faculties: a woman, excellent manager, makes purchases beyond her means; despair seizes her, she wishes to put an end to her life; sometime after general paralysis is evident. Several times we have noted the first indices of the evil to be the threats of suicide. The change of character can present clouds very different. Four years before the invasion of the paralysis, a man who had even then shown firmness, became irresolute, uncertain, wept easily, directed nevertheless his affairs for three years, then at the end of this time, he showed a new change of disposition, he became irritable, passionate, *colère*, and paralytic insanity succeeded these two metamorphoses. When apathy succeeds, the affected

cease all their pursuits, yet give with calmness good reasons for their conduct, but it seems impossible for them to do anything.

* * * A long time before the appearance of the paralysis, we have noted cases going back six or seven years, we see manifest, with certain individuals, perversions of the moral and affective faculties, which do not hinder them from filling the positions and performing the duties of social life. The surprised, desolated families murmur at the base acts, the indelicate, immoral, the debauchery for which no precedent can prepare them; they excuse the wrongs, pay the damages, stifle complaints, when at last this long and secret martyrdom is terminated by an outburst of the disease."

Brierre made an analysis of 100 cases of general paralysis; on page 16 of the work we have cited, he says: "In the analysis of one hundred cases of general paralysis, we find when we come to the third category, comprising *the disorders of intelligence preceding those of motion*, and which are composed of 42 observations, that one of the first and most constant disorders of the intellect appreciable, is a change of character which consists ordinarily in excessive irritability, impatience, anger, violence. This is observed with three-fourths of the cases. With a more limited number of individuals, the disease is, on the contrary, preceded by a state of calmness, placidity, indolence, apathy. These persons reason well, confess that they ought to labor, do manifest interest in their affairs; but between the word and action there is an abyss they never leap. One of the most ancient cases we have observed of this change is that of a chief gardener of a rich house. During several years he acquitted himself well in his situation, in which, however, it was necessary to follow only a routine. His activity being extreme, he was sufficient. Little by little he became silent; relaxed in vigilance; complained of difficulty in his head; he reasoned

well yet, but declared that rest would be useful to him. He was sent two months to the asylum. During the first he appeared better; the second he conversed lucidly concerning his horticultural labors; he was interesting, and appeared desirous of living to resume his occupations; he still showed signs of improvement. We believed him completely restored, and requested his master to remove him. Sometime after we received information of him; on his return to the country he commented on what ought to be done, *but did nothing*; he was always undecided. It was necessary to send him back.

A second example is that of an architect, also confided to my care. Married to a young wife, who was much attached to him, she perceived at the end of two years that he concealed his plans and appeared no more to be occupied or interested in his pursuits: he would promise to visit, to begin things, to walk, and never left the house. When this was represented to him by his wife he replied he liked nothing better than work, *and continued to do nothing*. This continued one year. He became more irritable, peevish, and absented himself from home. At times he stammered. It was at this time he was placed in my care. He was in the second degree of general paralysis of which the symptoms had existed five or six months. He became more quiet and remained in a state of apathy. At the end of six months his family finding him better took him home. This stationary condition lasted more than a year; then the disease advanced, and he died two years afterwards. In place of the choleric irritability, of reasoning apathy, or with both of these states, there may be manifested graver symptoms; thus we note perversions of the moral and affective faculties. Families are afflicted by these changes without knowing that very often they are the offspring of mortal disease; and, in effect these persons continue to perform well the duties of social

life. * * * This period of general paralysis, the prodromie, may persist many years, as we see with men, who up to this time have been religious, chaste, honest, present the most striking contrasts to their former life. Of these perversions that which has been the most marked is mania for thieving."

These limited propensities, perversions of instinct, treated of generally as forms of monomania, are but the expression of delusions that are deeply rooted in the mind: thus those who are Lord of all the earth, King upon the throne, the Savior of the world, possessed of unbounded wealth, &c., take what their delusion suggests to use for their own purposes; and although at first we are inclined to regard the stealing as an exhibition of natural corruption, if we study well the case and draw out the tendencies of mind we will find that it was in the line of the delusion, or of some delusive idea. These we have mentioned, and the victim of suicide, of melancholy, the homicide are all governed by the ruling delusion, the general tendencies that characterize the disease.

It is of the utmost importance, at times, in these cases to determine whether an act committed was in the line of some delusion or not. Thus the mother commits suicide, kills her children, or takes the life of others; if we study the ruling ideas we will find that she thought herself too wicked to live, or that her children would be safe from the evils of this world, or would starve if not killed, or that God commanded her to make a sacrifice, everything being seen only from the standpoint of delusion and performed in obedience to its stern commands.

Brierre says: "It is then evident that insanity, and general paralysis in particular, can change the character of individuals, and give origin to eccentric, bad, reprehensible acts in entire opposition to their known habits. But here is presented a dif-

ficulty: how can we distinguish between the perversity of passion and disease? It is unfortunately demonstrated by experience that some men who have acquired a reputation without blemish, under the influence of a violent passion, contradict all precedents and commit bad actions; this is a matter pertaining to justice, as a consideration of crime; but it happens oftener that those sudden falls, unforeseen, are the result of mental disease; and, as in this species of disease, there are frequently precursory symptoms, *avant couriers*, as has very well remarked a celebrated English alienist, Dr. Winslow, in his remarkable work: *On Obscure Diseases of the Brain and Mind*. These are premonitory symptoms that it is necessary to seek out and put in evidence. In a great number of cases the task is easy, and the physician appointed promptly points out facts that family affection has overlooked, palliated or explained away. Nothing is more common than to hear the relatives say: 'We have noticed nothing of all this; we attached no importance to it; or we regarded these things as eccentricities; as the result of disappointments; the idea of insanity was far from our minds.' Some say, 'you are dreaming; these peculiarities to which you call our attention have lasted a long time.' Some say, 'we weep at this conduct, we cannot comprehend it, we gave as a cause the age, disease, &c.'

But there are cases that surprise the expert, for which even he is not prepared; it is then necessary for him to redouble his care in his examinations and researches. The indices which ought to guide are at first ideas of disease; in the greater part of cases, in effect where these transformations of character, of humor, of conduct, are marked, it is proper to suspect general paralysis; if the age is from 35 to 45 years, if there has been sexual excesses or intellectual, the presumption will be strong; *if to this hereditary influence is united, the presumption acquires*

more force. But there are some evidences much more certain ; these are furnished by disorders of three important functions : the intelligence, motion and sensation. General paralysis may show itself by muscular lesion, it can manifest itself by united alterations of intelligence and motion ; it can show itself with trouble of intelligence alone.

Before describing the characteristic symptoms of these different lesions, it is necessary not to lose sight of an *initial* phenomenon, which, without being as universal as attributed by Bayle, is frequently observed, and deserves to be taken into consideration. I wish to speak of *congestion*. In one hundred observations it figures *sixty* times. This accident can consist in a simple deafening, vertigoes, that pass unperceived, but generally recognized, or in congestions with grave consequences and of a special nature. The congestion determines a weakness of the intellectual forces ; they become absent minded, lose the memory, hesitate in their judgments and conclusions ; attention, comparison, judgment, have no longer their clearness and force or precision, nor have they their ordinary firmness. If we engage the individual to make a *resumé* of something, to present in writing his observations upon a subject in litigation that requires developing, we notice the great difference between this work and those to which he has habitually accustomed himself ; by times *the writing itself* is changed. When the disease is more advanced we notice omissions of words, words forgotten, or letters at least. Benevolence is often more marked than is customary ; there is a confidence shown in conversation that later characterizes ambitious monomania.. At other times, on the contrary, but more rarely, we observe a state of mournfulness, a tendency to melancholy, to hypochondriasis. Few show the same degree of astonishment natural to men when strangers meddle with their affairs, that should be manifest at the interro-

gation of a physician when the examination is unknown to them.

The disorders of the muscular system are the key notes of the disease, and often reveal the existence of the paralysis. It is these, above all, that we consider the point of departure in the series of degenerations the patient is about to undergo. This sign so characteristic for the specialist, and which but recently was unobserved by expert medical men, manifests itself by a slight trembling of the lips, an embarrassment, scarcely sensible, of the tongue, a hesitation of a letter, of a word, which is supplied sometimes after a long interval. Without doubt this sign alone is not sufficient upon which to declare general paralysis but it weighs heavy in the balance, it directs forcibly the attention, and when it is joined to other well known symptoms, there is no longer doubt. This muscular weakness extends in effect to all the system; the figure has no longer its expression because the muscles which respond to intellectual operations no longer contract, or only with difficulty; standing is no longer perpendicular, movements no longer have their ordinary precision; the pupils become unequal; a certain number of these patients recognize the fact that they are no longer competent to perform their duties, that the sexual functions are in abeyance or abolished; while others, on the contrary, abandon themselves to excesses of all kinds. In order to recognize if this diminution of motility is extensive, we ask the patient to put out the hand and we learn that the pressure is not of a force sufficient to correspond with the appearance. Standing upon one leg announces also lesion of motion.

Sensation can present an appreciable alteration. M. De Crozant has indicated this fact as existing at the onset of general paralysis; many have demonstrated it; we have encountered it in an incipient general paralysis, in consultation with

Ferrus, Baillarger, Brochin and Carrière, Anæsthesia, studied with care in insanity, has been encountered a great number of times; it is common in the second and third degree. Since a long time we have experimented with our cases of paralysis, and in almost all cases we have observed a diminution of cutaneous sensibility, extended at times to its total loss. We ought to assure ourselves of the composition of the urine and of the state of muscular contractility under the influence of electricity. At length, in several of our cases we have seen *amaurosis*, *partial deafness*, paralysis of the sixth pair preceding many years the development of general paralysis, of which the diagnosis had been extended to that time.

The observations of this work, and the remarks to which they have given place, ought to be by right, concluded as follows:

1. That those individuals who, at an epoch not advanced in life, present a change of character, of conduct, commit acts which are in disaccordance completely with their principles and precedents, ought to create a suspicion that there is an alteration of their intellectual faculties.

2. This probability becomes a certainty when we show with them the greater part or a certain number of the symptoms characteristic of general paralysis, we have enumerated.

3. The doubt which arises at a degree of the disease not far advanced, is dissipated by a prolonged observation, because 95 times out of every 100 general paralysis tends towards continued progress and a termination in death.

4. At length the symptoms described have an importance that is real, for they point out to us, unquestionably, traces of general paralysis when the disease has not yet been declared."

It is unnecessary to add more; a multitude of cases could be reported, illustrating every symptom and phase of the prodromic period, yet they would only lengthen without adding fur-

ther to the subject. The above consideration of the prodromic period, together with what we shall present upon diagnosis, will enable any one to recognize the disease and will convey an idea of all we desire to express upon the subject of diagnosis.

V. DIAGNOSIS; COURSE; DURATION AND TERMINATION; PROGNOSIS. We present the subject of diagnosis as follows:

1. PHYSICAL. 1st the Speech; 2nd Pupils, vision; 3d Muscular action: walk, co-ordination; the paralysis general or partial, complete or incomplete; 4th Sensation; 5th Physical symptoms not always present, less frequently observed than the preceding; 6th Congestions, effusions of blood.

2. *Intellectual phenomena*: Delirium, general or partial. Is there a specific delirium? Two varieties: *Expansive*; *depressive*.

PHYSICAL PHENOMENA.

1. *Speech, articulation*. Writers mention, with scarce an exception, a change of speech, a difficulty in the articulation of sounds, as one of the earliest manifestations of physical disturbance characterizing the early derangement preceding the development of general paralysis. The speech is said to be *brusque*, a sudden stoppage, stuttering or stammering, or hesitation. It is described also as being like that of a drunken man. The tongue seems thick, unmanageable—co-ordination of muscles so essential to perfect articulation seems impossible. At the same time this difficulty of speech is observed other muscles of the body may be affected, but as the muscular action of the tongue must be more perfect to produce distinct sounds, those may escape notice. This is not always present in the same case with the same degree; it may be observed at one time

and altogether absent at another. Under excitement the trouble is aggravated—articulation acquires its greatest degree of intensity; it then assumes an explosive, or convulsive character. Another feature described by Ronquin is *slowness*. The words or syllables are separated and dragged. Hesitation alone, or even stuttering, is not a symptom of importance with many men, yet when an individual whose articulation has been perfect, whose speech is fluent and easy, shows hesitation, difficult articulation, it should awake suspicions of cerebral disease.

As general paralysis develops itself and the paralysis of muscles is more complete, intelligence also abated, the trouble of articulation increases until at length power to utter articulate, intelligible sounds is lost.

The trouble of speech, at the onset, is due to irregular contraction of the muscles, portions contracting spontaneously, as it were, and portions under the influence of the Will. This fibrillary, or vermicular motion, destroys co-ordination, or renders it impossible. With some it is not manifest when there is agitation, although with others, in general, the contrary is observed. With some it is not apparent until there is fatigue, as after reading or speaking for a considerable time.

Difficult articulation does not always indicate general paralysis, yet when taken in connection with other symptoms, intellectual and physical, it assumes great importance; *it is positive evidence of cerebral disease* and co-existing symptoms will determine its significance.

2. *Pupils, Vision.* The state of the pupils, whether variable, whether contracted alike, as to whether contracted or dilated, has received considerable attention from those investigating and writing upon general paralysis.

In the congestive periods, and in some cases, at other times, both pupils are observed to be unduly contracted, the usual con-

dition, however, is, that where there is alteration of the pupils one is contracted more than the other.

Total blindness, partial, or only slight defect of vision may be observed, with one eye generally more than the other, yet both may be affected.

Baillarger claims that he first pointed out unequal contraction of the pupils as a diagnostic sign of general paralysis; but says: "this may be discovered with persons perfectly healthy in mind, and who never subsequently are attacked with general paralysis. This unequal contraction of the pupils observed, is also observed in simple insanity. We learn that they have had, at a period very remote, some affection of one of the eyes, and that since, the sight is more feeble upon one side. These facts have nothing in common with those connected with the onset of general paralysis, or its course.

Of one hundred cases we will see, for example, one-half or two-thirds who offer for the first time, without having had any previous affection of one eye, this symptom of unequally contracted pupils.

It will certainly come into the minds of many to declare that an individual, because he has unequal pupils, is threatened with general paralysis, but if to this symptom be added other indices, very slight, of another nature (greater activity, change of character, irritability, &c.,) then the inequality of the pupils becomes a sign of sure significance. There is no disease of which the development is preceded by more insidious signs than general paralysis. All signs, however slight, deserve the highest degree of attention during this prodromic period. Inequality of the pupils is one of these signs. I believe we ought always to seek to determine its existence." Griesinger says Seifert found with twenty-five paralytics seventeen cases of which there was inequality of pupils, but says it must not be regarded as a

certain sign, for reason that it sometimes precedes for years outbreaks of insanity in which there is no paralysis."

Moreau, says Griesinger, observed irregular pupils with half of those afflicted with general paralysis; Lasèque, in one-third. "Considering the rarity of this symptom with other forms of insanity this proportion is very great. This symptom, when it presents itself, well marked, at the onset of insanity, is one of those which causes us to fear the invasion of general paralysis, more or less immediate. It may then be the first or among the first that excites attention. This was recently observed with a patient thirty years of age who presented no difficulty of speech for two months after the invasion of insanity. Four physicians united in consultation dared not decide whether the disease was a simple insanity or general paralysis, but basing their opinion upon the inequality of the pupils declared that he was *threatened* with general paralysis.

"Inequality of the pupils may have in certain particular cases, a special importance; thus with certain patients attacked with melancholic stupor, immobility, mutism, we are prevented from showing the essential symptoms of general paralysis; and the inequality of the pupils, above all if persistent, excites attention and justifies us in reserving our opinion until the appearance of other symptoms of the disease. It may be observed in cases in which general paralysis is not to be expected, and in other forms of insanity. It appears notwithstanding this, that aside from these cases, inequality of the pupils may make us suspect the invasion of general paralysis." (Griesinger).

Moreau found in 58 cases the right pupil was dilated more than the left 24 times, the left more than the right 34 times. From all sources of information at my command I derive the opinion, that inequality of the pupils as a *specific* sign of general paralysis is overrated by many writers; that it is indicative

of cerebral disease and is observed in many forms of insanity I will not dispute; but that we are able from this sign alone to declare general paralysis, or from its absence to say there is not general paralysis, is more than facts justify.

Nasse, of Prussia, has contributed much valuable information upon this subject. He says: "Observations continued for years in several large asylums, during which time I have given particular attention to the difference of pupils, and the symptoms of partial paralysis accompanying the same, give me a certain claim to speak on this question."

He says: Pelman notes the difference in 25 out of 50 paralytics. Von Linston (*Zeitschrift* xxiv, p. 440,) has observed in one third of his cases variation of the pupils.

Nasse says: "Of 108 cases of general paralysis which have come under my observation during the last four years, at Siegburg, the ratio was as follows: of 25 female patients one only showed no change of pupil, three others suffered from various diseases of the eye (Glaucoma, dimness of the cornea, Synechia of the iris,) precluding a judgment of the changes in the iris; but the remaining 21 had evident inequality of the pupils. Of 83 paralytic male patients, 76 showed a marked difference of pupils; in two others were noted constant contraction of both pupils to the size of a pin's head. Two suffered from diseases of the eye, viz: contraction of the iris and dimness of the cornea, which did not permit an appreciation of the state of the pupils, whilst in three cases only, no difference of the pupils was observed. Out of 103 cases, therefore, only 4 patients showed no changes."

Austin found only two cases in one hundred, of general paralysis, in which inequality did not exist. Thus while it is noted so constantly by some observers others have found it present in but half of their cases. Why this discrepancy? But

among the insane irregularity of pupils is noted as of frequent occurrence. Among 146 insane Castiglioni found only 36 with normal pupils. Nasse says an inspection made during the past year of all the sick, then inmates of the asylum at Siegburg, gave this result, that out of 229 patients only 83 were without this difference of pupils. He says about one fourth and no more of the patients under his observation show no abnormal state of pupil, face, and tongue.

He adds: "This frequent occurrence shows that these irregularities are in no way confined to the forms of general paralysis and dementia; but involve also in a considerable measure the primary forms of mania and melancholy." Nasse says other writers have not observed the inequality of pupils to be as frequent as his observations show it to be.

Marcé says, in doubtful cases inequality of the pupils, as a symptom, is of great importance. This inequality is explained by several writers, especially Baillarger and Marcé, to be due to the predominance of organic disease in one side of the brain. Nasse says the cause must be sought in the brain itself; Linston affirms the same. Budge attributes it to disturbed nutrition. Marcé says: "In many cases I have proved the inequality to be due not to dilation of one but constriction of the other pupil which remains immovable and strongly contracted, even when placed in darkness. I have observed with some patients both pupils contracted at the same time beyond a normal state."

Dr. Austin attempted to show a connection between the state of the pupils and the nature of the delirium: alterations of the left corresponded to maniacal excitement and ambitious delirium; alteration of the right indicated melancholic delirium; when both were affected equally, the delirium was mixed; when neither pupil was affected there was no delirium. This he confines to general paralysis. Pelman and Nasse, after making ob-

servations to test this, declare it incorrect. Nasse says Austin's reports are not reliable, and makes this remark in connection with the report cited of Austin, in which Austin found the pupil altered in 100 cases with all except 2 cases. Jacobi found the pupil altered in four only out of fifty cases. Notwithstanding this remark of Nasse he agrees with the report of Austin concerning the proportion of cases in which there is alteration of the pupils *which no other writer does*. The fact is singular: with Blackburn, whenever there was a difference in the size of the pupils noted, the right was the largest, coinciding with the views of Austin, Blackburn's delirium being of melancholic form. We do not, however, believe this theory of Austin, or accept it as correct.

Many writers note changes of the eyebrows resulting from paralysis of the muscles. They also note change of vision. Marcé says: "I have seen, five or six times, progressive weakness of sight, extending to complete blindness, some cases of strabismus, some of paralysis of the upper eyelid, before the trouble of speech appeared."

Calmiel says the sight is paralyzed wholly, or in part, in many cases. Many times, he says, the pupil is contracted or enlarged with both eyes, sometimes only with one, sometimes contracted upon one side, dilated upon the other.

Several writers remark, that the pupils may vary much from one month to another, with the same paralytic. (Calmiel, Roussellin, &c.)

The ophthalmoscope has been interrogated upon the conditions of the optic nerve and retina. The reports of observations are too limited to enable us to form any positive, definite opinion.

Henry D. Noyes, (Amer. Jour. Insanity, 412, 1872,) upon this subject, reports eleven observations. He says: "In all

these cases, with the exception of two, there is hyperæmia and infiltration of the nerve, and retina. The striation of the retina, near the nerve, is often extremely pronounced, and may render the edge of the nerve hazy and indistinct. The nerve is often opaque in texture, or may be of a slaty hue. In one instance the nerve is found pallid, and doubt is expressed whether this may not correctly be called a sign of atrophy."

In some cases pathological changes explain the troubles of vision, in others the cause must be referred beyond to the brain.

We may conclude this division of our subject by saying that one-half to two-thirds of those affected with general paralysis show alteration of one or both pupils; this may be either contraction or dilatation; that it is not constant, in all cases, with the same patient, but may be present at one observation and absent at another.

3. MUSCULAR ACTION: *Co-ordination of muscles; walk; the paralysis, general or partial; complete or incomplete.*

Griesinger has pointed out in the early stages of general paralysis, *spasmodic action*, as a cause of the want of co-ordinating power, instead of paralysis. Falret and Duchenne have also remarked that this inability to co-ordinate muscular action is due rather to imperfect, spasmodic contraction of muscles than a want of power to cause contraction. To produce accurate movements the muscles must contract uniformly, and in unison. This is impossible where a portion of a muscle contracts violently under a slight stimulus, and another portion but slowly. The same is true where one muscle responds readily to the will and another slowly or not at all. This may be illustrated by the tongue; it can be seen to contract unequally, and to contract in small portions spasmodically when protruded, producing the so called fibrillar contraction, or vermicular motion, some

fibers contracting, others not. This must explain many features of muscular action observed in walking, talking, &c.

Griesinger says: "The tongue is the first organ of which there is any inequality. The patient begins to have a little trouble in speaking, he articulates not very well the words, he stutters. The tongue is not for that deviated from a straight line, but when the patient thrusts it from his mouth it trembles a little and sometimes we see convulsive movements. This first symptom, diminution of the volubility of speech, which soon degenerates into stammering, has now an extraordinary importance. When we observe this with one insane we can say with certainty that he is incurable. Very often these patients have all the appearance of health and affirm, in every manner, they never felt better in their lives, yet we see develop with them progressively a series of symptoms that leaves no doubt upon the nature of the affection. At the same time that the speech becomes embarrassed, or more frequently a little after this phenomenon appears, we notice *a change in the walk*, the patient does not raise the legs as is necessary, he walks bad, awkwardly, he wanders unconsciously from his road, the least inequality trips him. Nevertheless he yet walks readily and is able to walk for a long time; there are even some patients who feel impelled to walk constantly, they make long promenades and an experienced person, as long as they walk upon level ground, would notice nothing peculiar in their walk. The arms preserve a long time their force; but in the same measure that articulation of words becomes more and more hesitating and difficult, and as we are obliged to exert ourselves to determine (*se chercher*) what these patients wish to say, the walk becomes reeling as if they were drunk, they drag the feet, the knees appear to desire to flex themselves, they are forced to aid themselves by seeking support from the walls, they stumble at each

footstep and often fall; the arms and hands become stiff and awkward, they seize things convulsively, by times they let them fall; all movements that demand precision (writing, carving, the piano, &c.,) become by degrees impossible. When lying in bed these patients can always move more freely their legs and arms, but these movements are always slower and stiffer than is normal. In proportion as the disease advances muscular power is lost until these patients can no longer hold themselves erect nor speak, they utter only confused sounds that are meaningless; if seated upon a chair they are unable to raise themselves or extend a leg, sometimes the arms enjoy greater liberty of movement.

“The muscular affection seems now to be very extensive, and almost general from the onset, although not well defined; it manifests itself at first in the organs of which the movements have need of great delicateness and precision; the tongue is first affected, and the embarrassment of speech is always a characteristic feature of this form of paralysis. Ordinarily there exists also irregularity, at the same time, in the movements of the lips, the pronunciation of labials is difficult, and even when the patient does not speak we observe slight convulsions about the mouth. In the superior extremities we notice, at the onset, a certain trembling without veritable weakness, tremblings which render the movements irregular, awkward, and uncertain. In the inferior extremities there is often less trembling, at the onset, it is rather an involuntary agitation, rendering the walk jerking and abrupt; the patient cannot regulate properly the movements of the legs; at this period the walk is *brusque*, but later by continued weakening of the muscles he cannot walk at all; we see certain groups of muscles of the legs seized with a stiffness, sometimes but slight at other times persistent for a long time. * * *

“Later there exists in all cases muscular weakness more or

less considerable; the trunk is inclined forward, the arms hang at length by the body, the head at times inclines backwards, the sphincters or museles which concur to expel the urine and fecal matter are affected, and at length the respiratory museles are invaded. *Occasionally we see one-half of the body paralyzed more than the other, a deviation of the tongue or one half of the face; in these cases the lesion appears to have for a cause a more considerable atrophy of one of the hemispheres or a unilateral hæmitoma of the dura mater."*

This lengthy quotation shows the progress and development of the museular paralysis; the relation of the difficulty of articulation to the paralysis, and that all troubles are alike due, where museular action is the trouble observed, to want of co-ordinating power, until finally paralysis puts an end to all museular effort.

MUSCULAR CONTRACTION AS INFLUENCED BY ELECTRICITY.

The influence of electricity upon museles paralyzed in general paralysis is stated to be the same as in other cerebral palsies; contrary to that which obtains in paralysis of peripheral origin or many spinal paralyses.

Griesinger says of museular contractility, under the electric stimulus, in general paralysis: "this circumstance is of no great value because this persistence of contractility is observed equally in a multitude of other palsies, as hysteric paralysis, paralysis from cerebral tumors, &c. Duchenne has observed this fact in his *traité de l'électrization localisée*, Paris 1855, and in his *mémoire sur l'ataxie locomotrice*, *Archiv. de méd.*, p. 68, 1859."

Dagonet cites also the observations of Duchenne concerning the influence of electricity upon the contractility of musele. He says: "This learned experimenter has arrived at very

interesting results. He has proved that in paralysis consecutive to lesion of the brain, and particularly in general paralysis with alienation, muscular irritability is preserved. On the contrary, electric excitation will not solicit the contraction of muscles in lead palsy, in those which are consecutive to traumatic lesions of the nerve trunks, or in those symptomatic of an affection of the spinal marrow. In that disease we have designated: *paralytic générale progressive sans aliénation*, which is not accompanied by any disturbance of intellectual function, and in which no special appreciable lesion of the nervous centers is observed, muscular irritability is especially wanting. In consequence electrization is adapted to distinguish all doubtful cases of general paralysis from those without mental disturbance. NEVERTHELESS, IN GENERAL PARALYSIS MUSCULAR CONTRACTILITY CAN BE REDUCED TO HALF, ONE-THIRD OR ONE-FOURTH OF ITS HABITUAL FORCE; it can also be shown very clearly at an advanced stage of the disease, especially when this has followed a rapid progress."

Marcé says: "General Paralysis resembles no other form; it is not *only* the abolition of muscular contractility that finds itself here displayed, since these patients seated or lying down can move very well their arms and legs, and since in their moments of agitation they discover surprising strength; but it is also in the defect of co-ordination, a want of precision in the movements which is very different from the abolition of the muscular sense or muscular ataxie, but which alone can explain the abolition of the locomotor faculties so complete. The state of the muscles and of their contractility as influenced by electricity deserves mention from this point of view; in effect whatever has been the duration of the paralysis, the muscular masses are relatively little atrophied; they undergo very rarely fatty degeneration, and even to the last moment, even with

patients who remain in bed, preserve intact their electric contractility."

Brierre de Boismont confirms the above. His experiments were in part made with Duchenne.

Dr. Bueknil says; "In the year 1852 we published, in the Report of the Devon County asylum, an account of some experiments we had made in the diagnosis of such cases, by means of the electric stimulus. The electro-galvanic apparatus was applied by us to the lower limbs of patients suffering from mental disease without paralysis, from dementia with ordinary paralysis. The results of our experiments proved, that in dementia without paralysis, and in dementia with ordinary paralysis, there is no loss of excito-motory sensibility, *while in general paralysis there is a great loss of this power.* In some cases the strongest stimulus of the electro-magnetic machine failed to produce any movement of the legs of the patient, beyond a slight tremor, not amounting to muscular contraction, and incapable of moving the limb in the slightest degree. This experiment may be more conveniently, but less effectually, tried by tickling the soles of the feet. In common paralysis it is caused but in general paralysis it is not caused. These experiments establish a pathological rule of much importance in diagnosis, that in paralysis having its seat in the brain, the excito-motory functions of the nerve is not lost; that in general paralysis, the pathological conditions of which involve the whole nervous system, the excito-motory sensibility is almost abolished."

THE PARALYSIS: GENERAL OR PARTIAL; COMPLETE OR INCOMPLETE.

Particular attention should be given to determine these questions, for the character of the paralysis, its extent and completeness throws great light upon the nature of the disease.

Requin, Sauze, &c., say, general paralysis may run its course and terminate fatally without lesion of intellect. We do not believe it. The general voice of authority is that no case runs on to a fatal termination without lesion of the intellectual faculties. There is weakness and unsoundness of mind in all cases that have entered upon the second or third period of the disease, but the mental phenomena enter as constituents of the fact determined by diagnosis, hence physical symptoms alone do not include all the facts upon which an opinion should rest. No two cases present precisely the same degree of advancement in respect to lesion of intellect, sensation and motion. Lesion of intellect may be observed before that of motion; lesion of motion before that of intellect; numbness, tingling, pricking and other lesions of sensation before either of the above. Lesion of sensibility may be very decided. Much of this is depended upon and governed by the point at which the disease begins to manifest itself. Attention will be directed by the competent observer to all three of these: intellect, sensation, and motion; yet not so that one will be studied wholly to the exclusion of facts revealed by observation of the others. When we observe a want of co-ordinating power, and of sensation, without lesion of intellect, we locate the primary trouble in the base of the brain and spinal cord. When the cortical substance is involved intellectual phenomena appear.

Calmiel says: (T. i. 494,) "Microscopic researches tend to prove each day more and more, that diffused, chronic perien-

cephalitis (general paralysis) can propagate itself into a certain number of cases from the intra-cranial nerve centers to the rachidian prolongation: that is, *the march is from above downwards*.

"We have seen it follow a course precisely opposite, in a certain number of cases. There certainly exist cases where the inflammation begins in a chronic form in the spinal marrow, where movement and sensibility, at first, are alone disordered, the moral and mental faculties are afterwards compromised in their turn; and where the functional derangements are the consequence evidently of diffused, chronic periencephalitis: we impress upon you the necessity of noting this observation, *that the inflammation proceeds from below upwards*, and we can take these exceptional facts for the rule."

In other words the phenomena express the seat of the disease, the chief difficulty being in establishing clear pathological views, or determining the nature of pathological changes before death—the same phenomena accompanying changes at different points; yet on the whole the above will serve as rules to guide in forming an opinion.

Baillarger also observes that general paralysis sometimes begins in the cord, or spinal marrow, what has been termed "*muscular sense*," that is the recognition of muscular conditions, muscular tonicity and contractile power, is a power of the mind. No matter how perfect all organization below the hemispheres, if they are diseased or wanting, there is no executive power. Cut the thread of communication between the brain and spinal cord and muscular power is lost.

The lesion of movement in general paralysis, or paralysis of the muscles, is characterized by its incompleteness. No one muscle seems completely paralyzed until life is nearly extinct. While the muscles seem to retain their size, unlike cases of paralysis following apoplexy, we find there is a gradual, progres-

sive loss of muscular power. While this extensive paralysis implicates great numbers of muscles, at length nearly all in the body, no one seems completely paralyzed, and the loss of muscular power seems so gradual the patient is unable to say positively when it first begun.

All writers, who speak of the subject at all, observe that the paralysis may be developed upon one side of the body, or upon one side more than the other. Baillarger, Calmiel, Dagonet, and others explain this fact by saying that there is greater compression upon one side than the other, and that this compression is due to more excessive congestion upon the side where such compression exists. Baillarger (*Ann. Med. Psych.* 1858, p 175,) remarks that "*hemiplegies* are observed of a persistent character, always located upon the same side, which depend upon the congestive predominance of one cerebral hemisphere, and which ends by determining an atrophy of the same side, well marked."

"Incomplete hemiplegia appears to be observed more frequently upon the left side of the body; it may change to the other side; it seems to be dependent upon dropsy of the ventricles, or of the arachnoid, the effusion being more abundant upon one side than the other." *Dagonet*, p. 425.

The lesion of motion then, in general paralysis, may be said to be characterized, as a rule, by a gradual, progressive exhaustion of muscular energy and contractile force, beginning with the tongue—showing itself next in the extremities; the muscles of the neck, back, and internal organs are in succession or simultaneously affected; the muscles of involuntary action are last affected; in no case complete until late in the disease, when the patient, an inert, helpless mass, is speedily relieved by death. The very incompleteness of the paralysis excites attention, that although so general there is yet so great muscular activity.

4. *Sensation.* To what extent and at what period of the disease

will disorder of sensation appear? What is its value as a diagnostic sign?

According to Calmiel and Dagonet troubles of sensibility are observed but at the expiration of some time after the disease is manifest—when lesion of movement and intellect have existed for a considerable length of time. According to Baillarger sensibility of the skin is diminished in the last two stages of the disease. Dagonet observes that those affected with general paralysis often manifest loss of sensibility, or a diminution, especially in the extremities of the fingers. "The special senses may be weakened—sight, hearing, smelling may be intact, yet it is common to find signs of partial paralysis, amaurosis, drooping of the upper eyelids, diplopia, deafness, &c.," *Dagonet*.

According to Connolly sexual desires will be extinguished. Dagonet says this is not always correct, that some patients discover a super excitation of the genital organs. He observed a case, he says, in which the disease had advanced to a considerable extent, and yet the individual became a father.

Griesinger says, special sense, as hearing, seeing, &c., may remain intact to the last, yet may be affected. He says: "The sensibility of the skin presents some very remarkable particulars. In almost all cases it appears in the beginning, obtuse, and later almost completely abolished, to such extent that we can pinch them without their exhibiting signs of pain. At times we have observed cases where slight hyperesthesia of the cutaneous surface was manifest: the lightest contact with the skin provoked extensive reflex movements, convulsions of all voluntary muscles, a state that offered the greatest analogy to the effects of strychnia."

Crozan says, lesion of sensibility ought always to be regarded as a precursory symptom of paralysis, which will follow. Baillarger, says, lesion of sensibility should be examined for in

all cases threatened with general paralysis. He says, however, that he has demonstrated the existence of anesthesia where there was no appreciable lesion of motion. One then under his care had ambitious delirium, with signs of demency, hallucinations of hearing, believed the owner of the house in which she lived had given it to her; the intelligence was feeble, the skin completely insensible.

Marcé says, the troubles of sensibility in the early period of the disease are of little importance. He says: "We have spoken of the weakness of sight, we have observed it in some exceptional cases. Besides this Crozant has noticed in his thesis* an almost complete general paralysis; I have had occasion almost complete general paralysis; I have had occasion to verify several times the correctness of this assertion. This anesthesia exists but in a light manner and disappears as soon as the troubles of motility are more decided, and reappears later, in the last period of the disease."

From this we conclude that the pathological changes inducing lesion of motion and intellect also involve the sensorium and organs of special sense. These last being modifications of general sensation, their centers in the base of the brain, with the common seat of sensation, no other result is expected than that all should share in the general ruin and degeneration of nerve structure. It is not expected that constant, identical lesions of sensibility should be manifest more than the same of intellect and motion. In the early stage then we may have predominate lesion of motion with anesthesia; lesion of intellect may predominate; or lesion of sensibility at an extremely early period but soon giving way to predominance of other symptoms; lesion of motion may appear before other symptoms.

* De la paralysie generale chez les aliens, Ann. Med Psychol, 1846, 132.

5. *Physical symptoms of secondary importance*, less constant in their appearance, non-essential to general paralysis.

Grinding of the teeth: This has been noted by observers as a symptom frequently manifest during the course of general paralysis. It is an involuntary, spasmodic action of the muscles, at times annoying to the patient, occurring in spite of his mental efforts to resist it and also during his hours of activity. It is in part due to spinal irritation, in all probability, or will be found more frequent with those having spinal difficulty in addition to cerebral. However it occurs generally during the congestive periods and may be due to meningeal excitement, inflammatory action, and irritation of motory centers consequent upon the congestion—the same irritation inducing the congestion being powerful enough to excite convulsive action. It is not generally observed except when a congestive period has exaggerated muscular activity.

Baillarger says; “We observe frequently this symptom in the course of general paralysis, and in some rare cases, we see it manifested at the onset of the disease. * * One of these patients has had for eight years hemiplegia of the left side, of which there yet remain traces, and he is a prey at times, to a cerebral excitement which forces him to acts of violence. The second patient has had two attacks of facial hemiplegia.”

Trembling is another symptom mentioned by writers. It is but the constant twitching of portions of muscle, or the vibratory, fibrillary contraction, or vermicular motion seen in the tongue, manifest elsewhere by *trembling*.

This action with the tongue—it is not always present, is not always of the same intensity when present, may be observed some days and not upon others, may be manifest in the morning and not in the evening; in short it is said to be more apparent when the nervous system is not modified by any ex-

ternal influence. It is but a lesser degree of that state of the muscular system observed in these cases, *Stiffness*, chiefly observed in the melancholic or hypochondriacal varieties of the disease. This may occur at the onset, during the prodromic period, during the course, or only during the terminal period. It is a prolonged *cramp* or rigidity of the muscles.

Continued efforts to swallow, spasmodic action of the muscles of deglutition, constant tasting, have been remarked upon by writers. They are either due to the modification of sensibility, or the same causes operating to induce involuntary muscular action elsewhere, in some cases to both of these causes.

Exaggerated activity. This as a condition the opposite of the apathetic, stupid, semi-comatose state sometimes observed should be regarded as an essential symptom—or as one of great significance; but having no *special* significance, except as indicating the activity of the nerve centers, that is, undue influence upon them of some exciting power, whether local or general disturbance, it is not regarded as an essential symptom. It is but a modification of the condition giving rise to irregular muscular contraction and spasmodic action—an impulse being added to move forwards. Many are unable to keep quiet, but are impelled to keep moving, walking, or are in some state of agitation. It occurs rather in the prodromic period, or at the onset of the disease than at a later period. As a symptom its value consists in its indicating the condition of the nerve centers, and the striking contrast it presents to the apathy, immobility and obtuseness of the depressive varieties. It is however not confined to general paralysis—hence is no specific symptom.

6. *Congestive periods, effusions of blood, &c.*

We come now to one of, if not *the most important* element of the disease: *congestion*. To do it justice we would require as much space as we occupy with the whole consideration of gen-

eral paralysis, yet sufficient may be presented to enable it to be recognized, and its importance in forming a correct opinion as to the nature and results of the condition.

Griesinger comments upon the congestive attacks that usher in, and aggravate the symptoms during the course of the disease, as follows, the full force of which can be appreciated only when considered in connection with the anatomico-pathological conditions observed after death. "We have made a very great number of highly interesting researches upon the state of the brain in general paralysis; they demonstrate that the alteration which determines the disease, is not the same in all cases. Here as in other affections of the nervous system, different anatomic lesions can give rise to the same group of symptoms. Ordinary apoplexy never determines this form of paralysis; on the other hand we often see during the attacks of congestion with loss of knowledge, effusions of blood more or less considerable form in the cavity of the arachnoid, effusions which afterwards encyst, when the quantity of blood is small, being transformed into thin false membranes, as efflorescences upon the internal face of the dura mater, upon the convexities of the hemispheres.

But we cannot admit that the apoplectiform congestive attacks are always the result of a hemorrhage into the arachnoid cavity (*hématome*); there are cases where these attacks occur a great number of times and with considerable intensity, in which there is no hemorrhage. We see sometimes, but this is rare enough, traces of ordinary apoplexy in the brains of those who have succumbed to general paralysis; it is a simple complication; *never, I repeat it, does this form of apoplexy determine general paralysis.*"

Marcé, upon the prodromic period says: "It is worthy of interest to remark that general paralysis when it arrives at a

period of complete development may offer uniform symptoms, yet at its onset it may present aspects the most opposite. For example, Jules Falret and Linas have elucidated this point with great clearness, and we admit with them that general paralysis presents at its onset four varieties, with progress very distinct, in two of which physical symptoms predominate, the *congestive* and *paralytic* varieties; and two which are characterized by intellectual troubles, the *expansive* and *melancholic* varieties. The expansive form with ambitious delirium is without doubt the most frequent, but it is not specific as Bayle has thought it to be, and the others ought to be described with much greater care as they have been the origin of the greater part of the controversies which have been raised upon the subject."

Marcé describes the *congestive* variety, his 4th variety, as follows, we omit the first three: "4th variety. In the congestive variety the apparent onset of the disease is a cerebral congestion, supervening in the midst of prodromic accidents as yet badly marked. This congestion that we discuss in another place in detail, for it complicates all varieties of general paralysis, presents itself in a comatose form, in a convulsive form, or a hemiplegic form. At first it presents nothing that distinguishes it from ordinary cerebral congestions, but when at the end of some hours or some days, the acute apoplectic symptoms are dissipated, we see them replaced by a maniacal excitement with ambitious ideas; more often yet the congestion seems to give place to a complete return to reason, but the speech remains slightly embarrassed, memory is weakened, intelligence has lost its clearness and vigor. In proportion as we depart from the initial congestion, these symptoms tend, in general, to diminish; we see even the mental faculties return to their normal state, when a new congestion leads to a new aggravation: the disease progresses thus by abrupt periods (*saccades*), for the

amelioration which is produced between two congestions goes always towards attenuating and conducting, little by little, to the second period of the disease. These paralytics have a peculiar physiognomy: with them the capillary network of the face is dilated and varicose, red cheeks, face, neck, ears and scalp injected. The temperature seems not increased of the skin, it is a passive congestion of all the cephalic extremity."

Further on Marcé says, "cerebral congestion plays a *role* of the first order in the progress of general paralysis. It is sometimes the first initial phenomenon; it can also terminate it suddenly by death. At length we encounter it at all periods, as a complication. All congestion, when it spares the life of the patient, leaves after it a notable aggravation of the troubles of motion and intelligence; and upon also another point, congestion determines congestion; in proportion as the number of attacks increase, its frequency, intensity and form, modify the prognosis. There is nothing in the general nature of the encephalic congestions that differs from congestions repeated elsewhere. The cortical substance with its vascular network abnormally developed, with the products of exudation, which alter profoundly its structure, can assimilate itself to these circumstances as well as to cerebral tumors, softenings, cicatrices, about which at irregular intervals congestion takes place, contributing considerably to the organic lesion, and manifesting itself by the habitual phenomena of congestion superadded to the phenomena of the first disease."

Aubanel, *Ann. Med. Psychol*, T. vii p. 189, 1846, gives eight forms of cerebral congestion occurring in general paralysis: 1, *forme légère*; 2, *maniaque*; 3, *convulsive*; 4, *hémiplegique*; 5, *coup de sang*; 6, *comateuse*; 7, *intermittent*; 8, *irrégulière avec alternance de tous les symptômes*.

Marcé presents six forms: 1, light with excitement; 2, mani-

acal; 3, comatose; 4, hemiplegic; 5 convulsive apopleetiform; 6, irregular forms.

"1. The first form, the mildest, consists simply in an abnormal increase of the cerebral circulation. The patient does not fall, remains conseious; but the face becomes red, eyes injected, pulse accelerated, gestures rapid; he becomes loquacious, cannot remain in one place, embarrassment of speech is sensibly augmented. Digestion is laborious, constipation, a temperature a little elevated serves to introduce this condition, of which the duration varies from a few hours to two or three days,* and which generally yields to a purgative or moderate blood letting. It is necessary to remember that these symptoms may be frequently renewed, and constitute less a real congestion than a permanent congestive state which leaves the patient without cessation under the threatenings of the most serious accidents.

"2. The second form differs from the preceding but in the degree of the excitement that the maniacal agitation assumes. Under the influence of the sanguinous afflux, the patient is given up to acts of violence and rage, and the delirious ideas redoubling with incoherence, and intense mental confusion. The redness of the face, and rational symptoms of congestion coincide with that state, which disappears readily under the influence of moderate loss of blood, prolonged baths, and habitual anodynes.

"3. In the comatose form the congestion is announced uniformly by the tendency to somnolency, redness of the face, physical and intellectual inertia. In a few hours this state attains to coma. The patients remain insensible to external agents, respond to no questions, and their muscles are in a state of complete firmness; respiration is as easy as in sleep.

* See Blackburn case at the end of this Report.

The comatose form, pure, is not extremely grave; it is not rare to see it dissipated in a few hours under appropriate treatment.

"4. The hemiplegic form can manifest itself at the onset and then becomes most serious. It is not rare too see paralytics in the midst of a meal, during a walk, let fall all at once an object that they hold in the hand, and cease to be able to stand upon one of the inferior extremities. They remain thus paralyzed of an arm, of a leg, or of one half of the body during some hours or some days, without any grave general symptoms accompanying these partial congestions of one hemisphere. The paralyzes thus produced almost always disappear, *but in an incomplete manner*, and leave after them a notable weakness *of one half of the body*.

"5. The apoplectiform convulsive congestion is of all the most grave, and perhaps the most frequent. In this the attack is sudden and really apoplectic. The patient falls as if thunderstruck, unconscious, insensible to all external excitants, and if he succumbs not immediately, is taken with convulsions. These convulsions are sometimes general, sometimes limited, may be to one-half of the body, half of the face, an arm, or leg; they can be purely eclamptic, without well determined character, or clothed with all the appearances of an epileptic attack, *i. e.* convulsive, with the initial shriek alternating with paleness and redness of face, bloody foam, and special convulsions. In two cases they were manifested by separate attacks at intervals of short duration, sometimes several attacks in twenty-four hours, separated by a state of coma more or less complete.

"6. The irregular forms are a mixture of the preceding. The convulsions, comatose state, paralysis, maniacal excitement, succeed without order to constitute a complete state that cannot be described."

These convulsive periods may occur four, five, or six times a

year, ending often in the death of the patient. In 86 observations Parchappe found death result 40 times from this cause.

Calmiel, T. i. p. 501, says of the convulsions: "In other circumstances the contractions of muscular fiber are incessant. In the cases of this species we see sometimes convulsions reproduced for twenty-four, thirty, forty, sixty hours without intermission, spasms of the eyelids, muscles of the jaws, lips, arms, hands, hips, the legs are incessantly shaken by a series of shocks more or less violent."

All the forms of congestion mentioned by Mareé may be successively observed with the same person, one attack may be slight, the next convulsive, followed by coma, paralysis more or less complete.

Baillarger, Appendix to Griesinger, p. 633-736, gives an extended consideration of the congestive periods of general paralysis. Calmiel, T. i. p. 510-680 and T. ii, we have the subject fully considered, and will be of interest to all who can read the French.

Baillarger says Bayle deserves the honor of having demonstrated that cerebral congestion is the immediate cause of general paralysis, and adds "this opinion is to-day generally accepted."

Aubanel says cerebral congestions are the cause of all the pathologic alterations which successfully supervene in general paralysis. They determine at first lesions of the meninges and end by altering and softening the gray substance, then the white, if the disease is prolonged.

Parchappe says: "The frequency of cerebral congestion more or less decided at the onset of general paralysis, is to me a fact so well established that often I have been able to foresee the immediate exhibition of paralytic phenomena in some cases where the intellectual trouble, still free from all paralytic com-

plication, or sometimes but very slight has been preceded by or accompanied by cerebral congestion.

Falret makes a distinct form—the *congestive* variety—of general paralysis, reducing the disease to *three* varieties: 1. congestive; 2. paralytic; 3. mental variety. Dagonet adopts this division of the characters of the disease and treats first of the congestive variety:

“1. *Congestive variety.* All authors have noted the frequency of congestions, more or less defined, in the prodromic period of general paralysis; they show themselves under the form of shocks, loss of consciousness more or less complete, sometimes epileptiform attacks. These congestions are accompanied with or followed by various paralytic phenomena, ordinarily temporary; an embarrassment of speech, often intense after the attack, but which becomes afterwards less perceptible, a weakness of intellect, or, even in some cases, delirium, either of a quiet or of an agitated character.”

General paralysis may be ushered in with an attack, or series of attacks, of congestion; after each period of congestion the paralytic as well as intellectual symptoms are aggravated. Some cases seem to advance in no other way. These congestive attacks may vary in intensity from a slight afflux of blood to full unconsciousness, resulting in death. They seem to bear the same relation to inflammation that congestion does elsewhere. The vegetative system of nerves—sympathetic—the vaso-motor, undergo profound radical change of character, either from exhaustion or depression as may be seen in these congestions. With the melancholic, except during these congestions, there is paleness. The turgescence resembles that produced by a section of the sympathetic in many cases. The continued congestion as shown by the redness of the face, can not result otherwise than in organic lesion. Nutrition must be greatly modi-

fied, and this is attested by *post mortem* examination, when the changes brought about are observed, as we shall see. The softened blood vessels, relaxed and crowded, give way, and effusions of blood follow, in the brain, eyelids, ears,* &c. The external appearances, congestion of face, ears and scalp, are of the highest significance in general paralysis, indicating the condition of circulation within. If with great restlessness there be excessive congestion of the external surface of the head, we would expect the same condition to exist *within* the cranium. Hence, declarations that they are of no value as signs, or that the condition indicates *nothing*, only expresses the superficial knowledge of the observer. Continental writers speak of this highly congested state, followed by local effusion of blood, as an erysipelatous condition—some call it erysipelas.

Griessinger, 505, *Traité des Maladies Mentales*, says: "One of the most frequent local affections with the insane is that malady of the external ear that we ordinarily designate under the name of *sanguinous tumor*, or *erysipelas* of the ear. The skin of the pavilion of the ear is tumified, becomes brilliant, tender and offers a fluctuation well marked; the ear thickens, it is bright red, hot, painful. If we incise the tumor, we see that it is formed by a cavity filled with blood, semi-liquid, which runs out by the wound produced, and is rapidly replaced; sometimes this pocket empties itself by spontaneous rupture. When we examine closely we find a sanguinous effusion beneath the perichondrium of the cartilage, which is as it were stripped. Generally the swelling and redness diminish in a few weeks, and nothing remains more than a thickness more or less considerable of the pavilion of the ear, *which is sometimes shriveled and deformed.*"

Marcé 453, says: "With cerebral congestion we note another

*See Blackburn Case.

remarkable complication, not for its gravity, but for its singularity: I wish to speak of the sanguinous tumors of the ears, or *hematomes auriculaires*.

"We find sometimes with the insane and above all with the paralytic, sanguinous tumors which are developed at the external face of the pavilion of the ear: described first in France, in 1838, by Ferrus, in his clinics at the Bicêtre. They have since been studied by Bellhomme, Cossy, Thore, Lunier and Renaudin, by Merland in his inaugural Thesis, 1853, and more recently by Foville who has designated more accurately than his predecessors the seat of the condition. In Germany, Bird, in 1838, published a good work upon the subject, and in 1848 Franz Fisher wrote an article for the Journal of Damerow. "It is almost exclusively with men that we observe this condition, and generally in general paralysis, but sometimes also in simple demency, acute mania and melancholy, where they are signs of its incurability; also we observe them in other affections than insanity, in hysteria, in typhoid fever, with professional wrestlers, with scholars with whom the ears have been pulled. (Bastien, Jarjavay, Mallez).

"The formation of these tumors has been attributed to a variety of causes; they have accused external violence, striking of the head against the walls, thereby injuring the ears, and above all the *afflux of blood towards the head*. There exists, in effect an intimate connection between the circulation of the ears and that of the rest of the head; every time there is cerebral congestion the ears become red and turgescnt, sometimes they become pale as in syncope; in general paralysis where the congestion of the head is incessant, it is natural to think that the vessels of the ear dilate and thus favor the effusion of blood. This view is sustained by Bellhomme, Cossy, Renaudin, Delasiauve, and Foville in his *Recherches sur les tumeurs sanguines*

du pavilion de l'oreille chez les alienes. Ann. Med. Psychols, 1859.

"I will cite also an observation published by me in 1858, in which the eyelids were at the same time as the pavilion of the ear, the seat of a sanguinous collection, as if all the capillaries of the face were at the time the seat of the same turgescence.

"A little before the appearance of the tumor, we notice that both ears or only one, becomes red, sensitive and swollen; at the same time the patient presents all the signs of an active cerebral circulation; by times the skin has its normal color and the pavilion presents an oedema purely serous. The sanguinous effusion is rapidly produced, sometimes in seven or eight hours, and more frequently we observe its existence only when fully developed.

"The volume of the tumor is variable, it may be small as a pea or large as a pigeon's egg: it then makes a considerable projection, and when existing in both ears gives the physiognomy a singular and characteristic aspect. It extends to all the pavilion, except the lobule, obliterates the meatus and leads to deafness. The hard tumor sometimes offers a sort of crepitation within due to the crushing of clots; in some cases it is fluctuating at the center and indurated at the circumference."

Schroeder Van Der Kolk, *Pathology of Insanity*, 115, speaking of the nature of this condition, says: "The suspicion may easily arise that the swelling was the consequence of previous maltreatment. I have, however, observed one case where an insane patient made this accusation, but it was thoroughly unfounded, for afterwards without any obvious cause, a similar swelling appeared in the other ear." E. R. Hun, M. D., in the *American Journal of Insanity*, July, 1870, with photographic plates illustrates fully the *appearance* of the condition. (Cases in the New York Asylum, Utica). He says, "The form of insanity in 24 cases was: general paresis 8, melancholia 6, acute

mania 4, chronic mania 4, dementia 2,." It occurred 23 out of 24 times with men. Both ears were affected in nine cases, the right ear alone in nine cases, the left ear alone in five, in one case the records do not state which ear was affected." In relation to prognosis its importance may be seen by the fact: in nine cases the patient died insane at the asylum, nine were discharged unimproved and six remain in a state of dementia. He says it occurs only with the insane and denotes the incurability of the affection. "It is idiopathic, depending upon a pathological condition of the brain, and is incapable of being produced by external violence alone."

We believe the condition in question is one peculiar to insanity. We believe the cause to be, the most direct, the paralysis of the walls of the blood vessels, the organic changes consequent upon it, malnutrition, causing when there is afflux of blood the weakened walls to yield to the pressure, and without as well as within the cranium, effusion of blood. It is more frequently observed within the cranium, giving rise to apoplectic attacks, sudden loss of consciousness, or paralysis complete of one half of the body. Where the effusion is small the effects will be in a corresponding ratio less manifest. The condition is evidently due to the paralysis invading the vaso motor centers, inducing thereby stasis of blood, consequent upon which is the malnutrition of the vessels.

Morel, citing Calmiel upon the tendency of certain insane to suffer from attacks of erysipelas, says: "In the commencement of my practice, I confess that I did not take sufficient account of the attacks of erysipelas which with certain insane, invade the face, the scalp, neck; and of the phlegmons of the parotidian region; they ought to be taken into serious consideration.

"We think, says Calmiel, that these accidents ought to be classed among the manifestations purely essential and dynamic.

This is true for a great number of the insane, *and I except not the hereditary*. But it is among these, who owe their predisposition to inflammatory disease of the brain to their ascendants that I am speaking at this moment."

Thus those whose vegetative system is characterized by a depraved condition, without energy, as a consequence of hereditary influences are predisposed by virtue of this adynamic state to congestion and effusion.

Foville, *Recherches sur les tumeurs sanguines du pavillon de l'oreille*, p. 21, cites four conclusions of Bernard concerning the nature of these effusions of blood, deduced from section of the great sympathetic: "4. The formation of bloody tumors of the pavilion of the ear is most generally preceded by, and accompanied with a general disturbance of the circulation of the head, and it is worthy of remark that the increase of redness and of sensibility, that we demonstrate in these cases, resembles in a striking manner that which we observe with animals of which we have cut the great sympathetic at the neck, or have removed the superior cervical ganglion."

INTELLECTUAL PHENOMENA.

We have fully considered the physical symptoms and occasionally have made reference to the intellectual. We have already remarked that the intellectual phenomena are characterized by two features, opposite in character: expansion or exaltation, and depression or melancholy.

The *monomania des grandeurs*, ambitious delirium, has been by a few writers, and is still regarded by some, as *specific*, *i. e.*, characteristic of general paralysis. When we study the works of those writers whose experience, ability and reputation entitle them to great weight, we find without exception they do not

accept this doctrine, but on the contrary emphatically declare it unsupported by correct observation. Calmiel, Baillarger, Marcé, and others, have so clearly proved the contrary to be true, that we have little confidence in the views of any writer upon any other point connected with the disease who does not repudiate this error of the past, for to adhere to it shows a limited knowledge of the subject, or an unwillingness to profit by the experience of others.

Bayle thought the *delire des grandeurs* the only type of mental phenomena existing in general paralysis. Is it correct? Do his own reported cases justify the conclusions?

Brierre de Boismont, Article: *Demence paralytique*, in the *Bibliothèque du medecin praticien*, T. ix, 548, speaks of the relative frequency of ambitious delirium. He says: In seeking the frequency of ambitious delirium in 42 observations in the work of Calmiel we have found 25 who offer this type; in 85 observations of Bayle, 52 presented symptoms of the mania of riches, honors, &c.," He remarks that some who did not manifest ambitious delirium at first, did later in the disease, and that with some who manifested this form of delirium early in the disease, later it was not manifest. In the pamphlet we have quoted before, upon the perversions of moral character in the prodromic period, he says: "We still remark that this delirium ought to be studied during the whole course of the disease; for some paralytics who at the onset have not exalted ideas of grandeur, manifest them later, and the contrary; in some cases these ideas are transient, flashing along like meteors."

Baillarger has made a similar remark. in *Gaz. des Hopitaux*, July 14, 1844, "some individuals who in the first stage of the disease do not manifest ideas of grandeur, offer them later, and *vice versa*."

Crozant expressed himself as follows in 1844: "The coin-

cidence of the *manie des grandeurs* and general paralysis is a truth that I am unable to comprehend but I am able to establish it. I affirm that there is not at the Bicêtre, at this moment I have observations of them under my eye,—a single patient attacked with general paralysis who does not manifest ambitious mania, provided that at all times we properly interrogate him, and who will not be moved when we say he is either rich or poor.

I went through the Bicêtre one day with a physician who devoted his attention to insanity, and asked him to show me one case of general paralysis that did not present this species of mania, his opinion nevertheless was to the contrary. After many attempts he led me with an air of triumph to one and asked him before me whether he was rich, whether he was a prince or worthy to be one, or hoped to be one in the future.

The patient replied very wisely that he was a tailor, that he scarcely gained a support for his family and that he never had other troubles than to do well his calling. All his conversation was very reasonable, and to the physician seemed very fairly an exception. I hesitated not to show him he was mistaken. In interrogating him in detail upon his condition, upon his business and his manner of pursuing it we found we had a tailor the most expert, the most distinguished, the most eminent that ever lived, a tailor most vain, proud, one could find. My *confrere* declared his error. The paralyzed show this presumption in all that they touch; their beauty, their health, their muscular force, their talents, are in succession boastingly displayed, in a manner the most pompous, and with rich images and epithets." (*Gazette des Hopitaux*, April 26, 1842.)

The most recent writers are disposed to multiply varieties, and perhaps to too great an extent, dividing and sub-dividing

until one becomes weary in tracing out all the details upon which the divisions are based.

Briande and Chaude, in the new edition of their classical work upon Legal Medicine, make *four* varieties.

Marcé divides general paralysis into four varieties; *two* are based upon the *intellectual* phenomena; *two* upon the *physical*. They are: 1. Expansive; 2. Melancholic; 3. Paralytic; 4. Congestive.

We will consider the *melancholic* form, in connection with that of exaltation, as the relative number of each, the frequency, will be better determined, as well as other facts.

Marcé describes the *expansive variety* as follows: After a prodromic period, of which the duration is variable, the patients, now violent and irritable, become little by little, more active than is consistent with a normal state. They write, compose, speak, move without cessation, form, without cessation, new projects, and think nothing impossible; at the same time their memory weakens; they forget that which they have done a few hours before. Without having yet the seal of ambitious delirium, their conceptions are difficult to realize, based upon foundations unsound, and present a striking contrast with all the habits of their life. On the side of the organic functions the excitation betrays itself by symptoms not less decided; these patients cannot remain an instant in a place; they feel the need of walking, of running, and are indefatigable; I have seen a landlord, at this period of the disease, strike with force, wanting power to repeat it, the furniture and staircase of the house where he lived. It is with these we observe a *genesique* excitation that is insatiable and which respects nothing that will satisfy it, and which forces, even in public, to most deplorable acts; with others it causes an unquenchable thirst for alcoholic drinks which aggravates the disease. There results from

it a disordered and irregular manner of living, excesses of all kinds and delirious acts which attract attention.

These patients quit their homes, wander in the streets and fields, undress themselves, sleep in the open air, purchase at shops and hire conveyances by the day without power to pay for them, even commit thefts of a special nature, as if without intention and by mistake, from the front of a shop or a store window. It is at this period that, under the influence of this impulse to continued action which rules them, of this spirit they manifest in everything and which renders them fearless, bold, and disposed to doubt nothing, that the subjects the most avaricious, the most stingy in their dealings, enter upon hazardous speculations, foreign to all their former prudent and well-considered habits, make purchases out of proportion to their resources, and give orders to fit up their property and embellish and adorn it in a way they can never realize.

When the cerebral excitement arrives at this degree it soon assumes the proportions of a veritable maniacal delirium, and then shines out in all its plenitude the delirium of ambition, so curious, so characteristic, so variable in its manifestations. Most generally the ruling ideas are of money and riches. The patients refuse to work; they acquire 20 francs, 100 francs, 100,000 francs per day. Without transition they gain millions, and even more as declared daily by them. They possess castles, immense lands; they speak of gold, of diamonds; they regard the walls, the furniture, the objects which surround them as formed of precious metal; in their expansion that nothing limits, they make considerable presents to their friends, relatives, and promise fabulous sums for the most trifling service. To the ideas of richness they add ideas of glory, honor and power. They are presidents, kings, emperors, according to the political form of government, or system of their age; they flutter with

ribbons of all colors, with titles of nobility, giving themselves titles of illustrious birth, going even further, regarding themselves as endowed with supernatural power, genius; they are Gods themselves. Nothing equals their grand conceptions, their gigantic projects; they wish to change the surface of the earth; they give a banquet to the universe upon a table a thousand miles long; they are going to create men 30 arm-lengths high; they can heal the sick; bring to life the dead.

At the onset of the paralysis while the intelligence preserves yet a certain force, this delirium can be produced with a richness of imagination, with a vivacity of colors attaining to the most strange conceptions, and the most fantastic, ending always in a state of good fortune, of riches, of power not only for the patient, but for all who surround him. A paralytic informed me that he was about to create a new world, traversed by rivers of immense size, filled with gigantic fish, and valleys of extraordinary fertility; every inhabitant of his palaces should have 100,000 francs income and live in extreme good fortune. He would be God and his wife a Goddess.

This ambitious mania which can vary to infinity, never arrives at its complete development at the onset of the disease; then it may be of a modest nature, announced by a certain reserve, and is progressive but as the patients advance with the disease. The poor workman, interrogated upon his fortune, doubles the price of his day's work, and counts upon resources he does not possess; but his pretensions are so little exaggerated that research into them alone will reveal the truth. The merchant, the manufacturer attribute to their industry proportions far exceeding the truth and which they have in no way realized. It is but progressively that these exaggerations reach an extreme degree and strike all by their unreasonableness.

At the side of this delirium of ambitious form there exists

another variety, which though less marked than the other, possesses as considerable semiologic value; the patients attacked have not so to speak delirious conceptions, but they live in a state of happiness and self-satisfaction nothing can alter. They make pretensions to poetry, to literature, to force; they feel vigorous, endowed with robust health, never were they better. They bare their arms, admire the beauty of their forms, the vigor of their muscles; full of an unaccustomed coquetry they pass hours before the glass, painting themselves, smoothing and arranging their toilet; their countenance is open and smiling; they approach with open hand, obliging, affable, satisfied with all, and show with pride their houses, furniture, clothing and the most minute objects they possess. This form of delirium is prolonged often during the last periods of general paralysis, contrasting in the most powerful manner with the degradation, physical and intellectual, manifested by the patients; but in reality they show no suffering and are only happy fools.

Thus, as has remarked with much justness, Falret, the ambitious delirium of paralytics, whatever it may be, complicates itself with the assembly of characters of demency. Very different are the monomanias of pride, which systematize their delirium with perfect art, conform their actions to their words, and sustain their convictions with vigorous logic; paralytics are remarkable for the particular nature of their absurd ideas, ambitious, multiplied, contradictory. We see very soon that with these patients, memory, reason, and logical sense are profoundly attacked; they speak of leaping the Seine on stilts, of building a village of gold, of creating a universe. To-day they are an Emperor, to-morrow they will be King, Pope, a General or God; they show no fixed opinions, but cede willingly if we contradict them, passing from one idea to another, are afflicted and mournful the same moment, forgetting the false conceptions

they had the evening before, and when we interrogate them they relate parallel their real and imaginary life.

“2d *Variete Melancholique.*

At the side of the expansive form, at the onset of general paralysis, we notice the melancholic variety which makes with the preceding so striking a contrast. Calmiel and several authors have remarked that if we inquire with care into the history of paralytics found in the asylums, we will show the existence of a melancholic state, sometimes short sometimes very prolonged. The patients believe themselves ruined, lost, dishonored; we see them fly; they have committed crimes; they are destined for prison or the guillotine, and have ideas of suicide, even attempt it; they offer, in a word, that assembly of symptoms, of delirious conceptions and acts which constitutes melancholic delirium. Often, and this fact strikes me forcibly, in the midst of the most oppressive, false ideas, we see appear ideas of grandeur, riches, and pride, which manifest themselves at irregular intervals, and in a light manner, the patient forgetting them a moment afterwards, and which contrast so strangely with their attitudes and lamentations. With these subjects, melancholic depression can extend even to stupor; they remain incapable of acting, mute, immobile, refusing all food, falling as often as we raise them or they attempt to walk, and having to a certain extent knowledge of their physical and moral annihilation.

“Melancholic ideas can be associated with hypochondriacal which give to the patient a peculiar physiognomy. Not only the patients are mournful, dejected, but still they experience a vague and general *malaise* which shows itself and is correlated by the fear of death, by fantastic conceptions, and singular views of the manner in which their organic functions are executed. They declare they can neither swallow, urinate nor go to

stool; that their intestines and natural passages are closed. That they have no longer throat, stomach or belly. This form of delirium is not specific, as insisted upon recently by Baillarger, and has no value in a diagnostic point of view except when associated with lesions of motion.

The melancholic or hypochondriacal delirium, as well as the disposition to commit suicide, and the stupor, may be prolonged many entire months; I have even seen it persist to an advanced period of the disease and give place but slowly to ambitious ideas or to an abnormal state of satisfaction and well-being. Experience shows, moreover, that this variety of onset is very grave, and that often it accelerates the fatal march of the disease. The melancholic depression, refusal of food, add themselves to the other symptoms of general paralysis; they result in profound lesion of nutrition, emaciation, tendency to sloughs, and a promptly, mortal adynamic state.

All writers say that in all these cases the delirious conceptions, melancholic or hypochondriacal, are so decidedly marked that at the onset they mask all other symptoms, and under the diagnosis of general paralysis, very serious, until later when it becomes clearer. In these cases it is necessary not to forget the embarrassment of speech, inequality of the pupils and the troubles of motion existing here as in other cases, but with variable shades and going back far into the antecedents of the disease, we find almost always a weakness of memory that has preceded several months the appearance of other symptoms."

Notwithstanding that Marcé, Calmeil, Baillarger and others mention the melancholic variety and the fact that the depression amounts in some cases to actual stupor, late writers, those who are in positions calculated to render them familiar with these facts, assert as if a newly discovered truth, they have not seen this mentioned before. The American Journal of Insanity, for

April, 1872, contains the views of Dr. Gray, Superintendent of the Asylum at Utica, Editor of the Journal. The article containing his views is entitled: *Psychological Retrospect*; being a review of the English Psychological Literature for 1871. The reviewer uses this language concerning the name of the disease: "We believe, with Dr. Bacon, that the term General Paralysis is 'bad enough.' It is a much less accurate and scientific term than General Paresis, *as there is no paralysis* in any just sense of the term in this disease." The views of Dr. Gray referred to are taken by the reviewer from an asylum report. We present it at length, as it covers other points as prognosis, &c. Dr. Gray says: "Since my connection with the institution 198 cases of paresis have been admitted. Of these no case has recovered, though in a number remissions have occurred, in which the mental disturbance seemed entirely to have disappeared. Four years ago, in a paper on general paresis communicated to the State Medical Society, I reported a case where this remission continued for almost a year. A most important question has been, what physical symptoms precede the mental disturbance? In the paper alluded to I made the following remarks upon this point:

In some cases there is a well-marked stage of stupor and drowsiness preceding this excitement, during which the patient complains of cephalgia, of languor, and inaptitude for exertion; and of confusion of thought, loss of memory, and uncontrollable disposition to sleep. During this stage there is often a vague consciousness of illness, though the character or weight of the disorder is not suspected by the patient or his friends, but as soon as the stage of exaltation and excitement supervenes, the patient feels strong and vigorous, and persists that he never was so well in his life.

This state of drowsiness, cephalgia, and consciousness of in-

disposition, preceding that of excitement, we have not seen mentioned, yet we have, in personal experience, the most unquestionable evidence that many cases are thus initiated, and we believe that the non-recognition of this stage is doubtless because patients are not placed under treatment in asylums during its existence, and the family, or friends, give the history, dating the insanity only from the marked symptoms of cerebral excitement; the preceding history involving this stage, is not obtained. Careful inquiry from those intimately associated with patients during the incipient period, and in one instance, the diary of the patient, and in another the letters written before insanity was suspected, established this stage."

Thus the acute, well-informed observer, Dr. Gray, has set forth the same facts observed by continental observers, his own penetrating mind having at about the same period of time, or but little later, discovered the same facts, which a study of French and German authors would have revealed to him. He goes on in the asylum report to speak of headache, dizziness, dullness and drowsiness, a sense of insecurity in walking, of muscular weakness, having preceded the full outburst of the disease for many months—one case two years. He says: "He suddenly became maniacal and violent; attacked physician and others. In the office was excited in manner, and showed a slight hesitancy in pronouncing certain words. Muscular tremor could be felt in fingers and hand when arm and hand were extended. There was slight vibratory movement of the eyeball, also a slight twitching at the angles of the mouth. The tongue, when protruded beyond the line of the teeth, was suddenly retracted. Lips were highly congested. His gait was characteristic—shuffling, irregular, uncertain; one foot was lifted higher than the other, and the heel was dropped more heavily. Complained of occasional spasm of the throat, as though a

hand had suddenly grasped the larynx. Maniacal excitement continued for a short time only. This was followed by marked mental enfeeblement. Paretic seizures supervened, which were repeated until paralysis became complete, and the patient helpless. In this condition bed-sores were developed, and the patient demanded great care. He died from paralysis a year after admission."

Griesinger says: "At the onset of general paralysis the intellectual disturbances present not always the same character. It is rare that we do not observe a melancholic period, which manifests itself sometimes as a simple depression, sometimes by very marked hypochondriasis. Very rarely do we see supervene the first lesions of movement during this period of melancholy; nevertheless, as has been observed by Calmiel, p. 328, this does occur, patients still having for some time melancholic delirium which transforms itself into demency."

Brierre de Boismont, in the work cited, Observation vi, p. 12, reports a case of the hypochondriacal form that is very interesting, the more so as Calmiel, Parchappe and Brierre consulted and together made the diagnosis. It is also interesting as an hereditary disease. He says: "This observation, the subject of which has never been lost from sight, is interesting on account of more than one point. We follow at first step by step the long incubation of the general paralysis to which this unfortunate organization is thus to say, fatally predisposed. A first derangement of mind, characterized by an exaggerated hypochondriasis, announces the approach of the disease; this fact confirms the opinion advanced by Baillarger, upon hypochondriacal delirium, considered as a precursor of general paralysis.

* * * This phenomenon is followed by symptoms of paralytic mania of ambitious form, and this, after a duration of some months is replaced by paralytic demency, mingled now

and then with melancholic depression, in which the patient dies, after a struggle of more than two years."

Calmiel says, T. i, p. 276: "The melaneholic type occupies a place as important among the functional manifestations of general paralysis, and since twelve years, *is as frequent with the subjects of attacks as the monomania of ambitious form.*"

Baillarger observing the great number of melaneholic cases of general paralysis, and recognizing the truth of the assertion of Griesinger, that there is with all cases a period more or less prolonged, of melancholy, at the onset, in 1860, read at the French Academy of Sciences a paper declaring that *hypochondriacal* delirium is the special delirium of general paralysis. In the appendix to Griesinger he says: "In place of but one special delirium in general paralysis, there are *two*. The ambitious delirium will be the special delirium of the monomania and of mania, *i. e.* of the forms we call *expansive*; the hypochondriacal, on the contrary, will be the proper delirium of the melancholic forms we call *depressive*." Moreau, Michea, and Dufour subsequently affirmed the same of general paralysis.

Dr. Comes reported to the French Academy a case of the melaneholic form, in a thesis advocating this view, in which the predominant idea was that the patient was *lost*, "*that he is going to die, if he is not now dead, and that his members were annihilated, that he has no limbs.*"

Baillarger remarks concerning the *stupor* observed with some cases, that it greatly hinders investigation and renders more difficult a correct diagnosis.

Writers mention as a feature of the melaneholic form, bad, offensive breath, a loaded tongue, &c. Authors mention that the melancholic cases frequently declare they are insane, are about to die, have lost some important organ, as the heart or stomach, that the pulse has ceased to beat, that their bowels are

so scaled they can never move, that they have lost all power to do certain things which it is wholly in their power to do if they could be so convinced, &c.

We will not multiply authority upon this, but close this division of the subject by one more quotation from Brierre—his work upon *Suicide*. We have all the important foreign works upon this subject but none except this contain any thing directly to the point—being silent upon the subject in general.

Brierre, *Du suicide et de la Folie Suicide*, p. 224, says: "Suicide has been reported several times in the course of general paralysis. It exists with that species of alienation of a melancholic form, less frequent than the ambitious variety; it is not rare, in these cases, to hear the patient say he is insane, lost, and that nothing remains for him but death; I have had care of several who have made attempts and have wished to die of hunger. Sometimes the paralytic will end his own life without having knowledge of it. One drew his cravat so tight around his neck that when we found him he was not conscious. He would have repeated it had we not taken measures to prevent it."

COURSE; DURATION AND TERMINATION; PROGNOSIS.

Nothing is more important in the diagnosis of any given disease, that is obscure, than to determine when its existence is suspected whether the history of the case conforms to the course, duration and termination of such disease. Thus if the universal result of the disease is *death*, and the patient recovers, our faith is shaken—we suspect our diagnosis is incorrect. Again if a disease runs a speedy course and our case is prolonged over many years again we doubt. It is important to determine at the outset in all cases, whether the disease is one that is *self-*

limiting, i. e., runs a definite course, in a given time, or one that may be prolonged an indefinite period, and also whether it be curable or not; this determined prevents oftentimes useless medication, anxiety and suspense, and is the means of preserving the reputation of the medical attendant, for who is there that will retain the confidence of patrons when after months of medication they learn the disease is one that is incurable. But however unfavorable the prognosis it is all the more important that it be formed, and that it be based upon correct diagnosis.

What is the course of general paralysis—uniformly steady in its progression, or does it at intervals retrograde, remain stationary, or seemingly disappear, thus prolonging life and extending the course of the disease? What is the usual duration of the disease? The same “Psychological Retrospect,” in the American Journal of Insanity, reviewing a paper from Dr. Boyd in the Journal of Mental Science, Oct. 1871, contains the following: “Dr. Boyd has in this number continued his observations on General Paralysis, and the morbid changes of the Spinal Cord. The Doctor very justly remarks, that any hope we may have of being able to arrest the progress of this disease, or to promote recovery, must rest on a just appreciation of its pathology. He quotes cases, given in his former communication as proving the fact, that by rest and proper treatment, the progress of the disease may be checked, even when the symptoms had continued for some time. Two cases discharged recovered were readmitted, one two years, the other thirteen months afterwards. Another case now in the asylum, is said to have recovered from the paralysis; and in another case, the paralytic symptoms were arrested, without mental improvement for six years; such cases, we believe, can be quoted from the records of all institutions, where this form of disease has occurred to any extent, and where no treatment of any

kind has been employed. They cannot in fairness be called cases of improvement, or recovery by the use of remedies."

The duration of general paralysis varies from a few months to several years, and is dependent upon the intensity of the attack and the progress of the disease as modified by remissions, in which the progress for a season seems arrested.

Sauze, *Ann. Med. Psychol*, 1860, p. 493 says: "Remissions may present three forms. In the first, we see disappear entirely the signs of paralysis and a persistence of the demency; in the second, the paralysis persists and the intelligence approaches a normal condition; the third consists in an improvement of both the symptoms of paralysis and demency. In all the remissions whatever may be the ruling form we encounter one common symptom: a weakness of the intellectual and moral faculties. These patients ought not to be considered as free moral agents; and in their own interests as well as those of their family they should be interdicted."

Dagonet remarks that these patients return almost to a normal state of health, and even appear healed, after having manifested the gravest symptoms. He says: "We have encountered striking examples; the symptoms of irritation retire little by little, motion retakes insensibly its functions as before, stammering and embarrassment of speech are dissipated, the delirium effaced, the individual attains to such a degree of health as to lead one to believe the recovery more or less complete. *This period of remission may have a prolonged duration sometimes even of many years.*

General paralysis has a variable duration; in some cases it is arrested at the first period, sometimes at the second period; it can then remain stationary for a great number of years, before resuming its progress.

Sometimes, as Trélat has remarked, *it is galloping*, and runs

its different periods in an extremely brief space of time; some-time weeks suffice to terminate it in a fatal manner. Rarely this disease terminates, nevertheless, in death in the course of a year its medium duration is two or three years; notwithstanding, this depends on the care given them.

Death occurs most frequently during the second period after a series of epileptiform convulsive attacks, or hypostatic pneumonia. When the paralysis reaches its last period, we observe a state of weakness and muscular paralysis that makes deglutition and respiration difficult which causes inanition and asphyxia."

Griesinger says: The duration of general paralysis varies from a few months to about three years. There are some exceptional cases (Brierre, Trelat,) in which the disease has lasted much longer, even ten years, *but it presents then long periods of remissions*. When the patients are cared for in their families they live longer than in the asylums; they ought to have the same care as little children. The attacks of congestion of which we have spoken exercise a bad influence upon the disease by greatly accelerating its progress; often even we see the disease aggravated from day to day without appreciable cause."

Griesinger says: "General paralysis is characterized by a progressive course, but in general this progression is rather irregular than constant, it is often even by abrupt spells. It is very frequent that we see supervene remissions as well in the intellectual as in the symptoms of movement; in some cases the patient presents no longer a trace of delirium; he can engage in his affairs; the signs of general paralysis being confined to a light stammering—a certain weakness of intellect and of character. These remissions may last a few weeks—we have seen them a year and a half; at all times these slight symptoms are sufficient to declare the individual not of healthy mind, and this in certain cases is of great importance as strangers to medi-

cine do not discover evidences of insanity. Often these remissions are interrupted brusquely by congestive attacks, in consequence of which the patient refalls into a grave condition and the paralysis marches on to a fatal termination."

Tardieu, *Manual de Pathologie et de clinique medicales*, p. 563, presents a *resumé* of the subject of general paralysis, worthy of translation. We do not think he correctly represents the literature of the period in all respects—the reader will however now be able to observe for himself concerning this point. It is as follows:

"*Folie paralytique* * * * is one of the most decided forms of insanity and almost constitutes a distinct disease. But it is certainly one of the most frequent forms of mental alienation. Among the general causes we cite, having the greatest influence upon the production of general paralysis, are drunkenness, venereal excesses, abuse of mental labor, reverses of fortune, torments of ambition. It is, above all, in the higher classes, a little more frequent with the men than women, and toward the term of adult age, that the disease is developed.

An attentive observation demonstrates, that almost constantly general paralysis is announced long enough in advance by very characteristic precursory phenomena. Sometimes a sudden cerebral congestion, with slight loss of consciousness is the first sign of the lesion that attacks the encephalon. Several successive attacks precede the proper phenomena of the paralysis. At the same time the constitution weakens by degrees; the character is insensibly modified, and these changes result generally from exaggeration of the qualities and defects, by a susceptibility, a very great irritability, an extreme facility to become angry. The least labor causes fatigue, a little tingling is felt in the hands; and when the patient is fatigued or animated by discussion we observe a slight embarrassment in the

speech, the pupils are unequally dilated. Under the influence of congestions more or less frequently repeated, this trouble augments, the movement of the members are badly executed. Little by little the memory weakens; in writing the patient forms the characters badly, omits letters or even whole words. The mind is idle, apathetic, and unable to find words or to express its thoughts. Aberrations are manifested in the acts. From time to time nevertheless the intellect awakens and presents an increase of activity excessive, but it soon again falls into a state of torpor where it languishes even to the day when without apparent motive breaks out an attack of acute mania, or furious delirium, with hallucinations that last several days, rarely several weeks. At the issue of this paroxysm, the lesions of movement of the tongue and other members have made great progress, and the maniacal delirium is replaced by a partial delirium, which consists almost exclusively in ideas of grandeur, (?) of riches and of ambition.

At variable intervals, we see reappear a period of excitement characterized, may be by congestion, may be by epileptiform convulsions, may be by only the return of the agitation and the fury. It is to these congestive movements toward the head that it is necessary to attach these infiltrations of blood into the cellular tissue of the eyelids (Marcé) the sanguineous tumors of the ears, seated between the perichondrium and cartilage (A Foville), and pointed out by several authors in general paralysis: Ferrus, Bird, Franz, Fisher, Belhomme, Cossy, Thore, Lunier, Renaudin.

With some patients during entire weeks, the convulsive attacks are reproduced several times a day and the excitement is prolonged a considerable time afterwards. In certain cases the disease remains stationary during several months or several years, but most frequently at each paroxysm the disease makes pro-

gress. The intellectual faculties weaken more and more; the walk becomes more and more difficult; articulation is very difficult; the monomaniacal delirium persists with the same characters. Soon it is necessary to keep the patient confined to the bed; the head no longer sustained falls upon the breast; the legs cannot support the body; the hands are incapable of seizing or of directing objects, the taking of aliments is even impossible, deglutition is performed only with the extremest difficulty; the stools and urination become involuntary. This exhaustion leads to a premature old age; all sensibility is extinguished, all intellectual expression or delirium has ceased. Feruncles, abscesses, disseminated eschars upon various parts of the body complicate this frightful disease, to which death comes happily to put an end inevitable. Death results at times from asphyxia caused by food passing into the air passages; more rarely it follows at a stage more or less advanced of the disease, upon an accession of maniacal agitation.

General paralysis is characterized by constant special lesions, which consist in chronic inflammation of the *pia mater*, and the gray substance of the brain."

The termination being death there is no grounds upon which to base any favorable prognosis. The few cases reported as cured are so very limited in number, compared to the frequency of the disease and the numbers affected, that we may say *it is incurable*.

VI. Our sixth and last division of the subject is the

PATHOLOGY.

We omit much that we have written upon the functions of the cerebrum, whether there be motor centers in the gray sub-

stance, the functions of the spinal cord, and the character of phenomena indicating lesion of particular portions of nerve structure. To do justice to the subject of the pathology, not only results, *i. e.*, not only anatomico-pathological conditions should be considered, but the action of causes whereby results are brought about. We should try to determine what structural changes induce lesion of intellect, what of motion, and what induce lesions of sensibility.

According to Parchappe, Delaye, Foville and Pinel-Grandchamp the following conclusions exhibit these points:

"1. The alterations of the cortical substance are closely related to intellectual derangements.

"2. Alterations of the white substance are directly related to alteration of movements. The anatomico-pathologic character of general paralysis of the insane consists in an induration of the white substance of the brain."

Bayle, as we have remarked, attributed general paralysis to inflammation of the membranes of the brain.

Parchappe, in 1838, attributed the disease to alteration of the cortical substance, and termed it a distinct species of insanity.

Morel, 805, says: "The lesions of cortical substance so clearly described by Parchappe in 1838, are clearly recognized to-day by all physicians. That which separates them is the question as to whether the morbid action has its seat of origin in the membranes of the brain or in the brain itself."

Belehomme thought lesions of intelligence precede always those of motion, and lesions of the cortical substance those of the white.

Brierre and Duchenne thought general paralysis a special form of disease, that might be distinguished as a cerebral disease from disease of the spinal cord by the means of electricity. Other observers found that while spinal disease prevents

muscular contraction, muscular contractility is much lessened in some cases of general paralysis, but this is probably due to implication of the spinal cord.

If we believe the centers that co-ordinate muscular action are in the gray substance of the brain, then this explanation is unnecessary. The muscle may contract from the power inherent to the cord, yet there will not be co-ordination if the centers in the brain are not intact. There can be no question that "muscular sense" is located in the brain—that feeling or consciousness of muscular action that enables us to recognize precision and co-ordination, yet there is *apparently* such independent action of the spinal cord as to induce some to believe the cord endowed with consciousness. For instance, when a person has co-ordinated muscular action for a long period in a certain direction, as performing upon the piano, it is but necessary for the will to institute the action when it will be continued, the attention being directed wholly to conversation or other matters, and not to the performance.

We desired to discuss these questions to considerable length, but as our paper is now drawn out to great length we will reluctantly pass them and will in future give them attention in connection with nervous disorders, hoping that more extended research may enable us to present the subject better than at this time.

Falret thought general paralysis a special form of insanity, the most natural of all because of the union of mental and physical symptoms.

Parchappe, p. 25, says: "Is not a disease a distinct morbid species which is produced under the influence of causes that produce super-excitation of the brain, principally with men and at the age of virility of which the symptoms may be expressed as a general and simultaneous lesion of *intelligence, voluntary*"

movement and sensibility; which has for its seat the cortical substance of the two hemispheres of the brain; which has for its anatomico-pathologic character constantly, a softening, the result of inflammatory action of the cortical substance in the two hemispheres; which disturbed by cerebral congestion more or less violent from day to day, causes a weakness more decided of the intelligence, of motion, of sensibility, ending in death by congestion or cerebral marasmus."

Tardieu, *Manuel de Pathologie et de Clinique Medicales*, 564, says: "*Folie paralytique* is characterized by constant lesions, altogether special, which consist in chronic inflammation of the *pia mater* and of the gray substance of the brain (*meningo-encephalite diffuse* of Calmiel, Bayle). At its onset this inflammation presents, upon the gray substance and upon the corresponding points of the *pia mater*, rose shaped spots, formed by a great number of little ecchymosses, in close proximity, presenting a very apparent mark, tenacious, not disappearing even by the most prolonged washing. This roseate coloration occupies at first the superficial layer of the gray substance, but it delays not to invade all its depth. The situation and number of these points (*plaques*) is variable; sometimes we find but few, sometimes they occupy all the surface of the brain. They are habitually more numerous upon the part of the hemispheres we call the frontal cornu. At first these spots present a circumscribed redness resisting washing and maceration. Later, in the same points, are formed adhesions of the *pia mater* of the brain; and when we have deprived the brain with care of its membranes a part more or less thick of the superficial cortical layer remains adherent to the *pia mater*, so that the brain seems to be the seat of irregularly round ulcers of which the bottom presents a rosy gray, granulated aspect.

At length when the lesion has attained the last degree of its

evolution, the adherence is general, and it requires much labor to separate the *pia mater* from the brain, of which the torn, roseate surface presents in certain places a total obliteration of the gray substance. This, at the same time, becomes friable, and as if formed of little grains having a substance analogous to that of tuberculous matter, and crushing as it were under the finger. The *pia mater* is red, thick and adherent to itself in places where it is in contact, so that a variable number of circumvolutions are found intimately united.

By microscopic examination we observe the increase of diameter of the capillary vessels of the *pia mater* and of the softened gray substance, as well as their multiplication. This increased vascularity extends even to the white substance.

Further, the walls of the capillaries are incrustated with fine molecular granulations or sprinkled with little agminated cells which abound in the bifurcations of the vascular trunks, and the tube of these is encumbered with sanguinous globules piled up so as to render all circulation impossible. Some piles of extravasated globules, more or less deformed, we encounter equally in the gray substance concurrently with plastic molecular granules and little spheres or disks finely marked, which constitute here and there groups or trains in the angles corresponding to the branching of the capillaries.

The extravasation of a blastema has for a consequence the organization of plastic products which alter profoundly the parenchymatous texture of the cerebrum.

The nerve cells are rare, their contour losing its perfect state and normal aspect, they are deformed, and end by emptying their contents. The nerve tubes are deformed, atrophied, their contents escape without, and they present no more an appearance of a tube, but of *debris* scattered under the field of the microscope. (Calmiel, Marcé, Luys).

To this principal lesion are joined others which are directly connected with it: injection and thickening of the bones of the cranium; opacity of the membranes; dropsy of the ventricles; granulations of the serous membranes, which cover their walls; atrophy of the central circumvolutions, false membranes, sanguinous pellicles, fibrinous growths, hemorrhages encysted, in the great cavity of the arachnoid. (Calmiel, Bayle). Paralytic insanity is very often complicated with organic lesions very diverse of the thoracic or abdominal viscera."

Calmiel, T. i, presents in the third chapter of his work upon Inflammatory Diseases of the Brain, a synopsis of thirty-seven cases. I translate it from the work.

"The observations contained in this chapter are thirty-seven in number, of which four only are women.

Among the men, we observed four patients aged thirty to thirty-five years, eleven aged thirty-five to forty years; ten aged forty to forty-five, three aged forty-five to fifty years; two aged fifty to fifty-five, two aged fifty-five to sixty, one only aged sixty five years. The youngest woman was thirty-five; the oldest forty-eight; the two others placed by conditions of age between forty and forty-two years.

The average age of the thirty-three men is at the onset of the disease, forty-one years. (I fix the *debut* at the day we first notice the manifestation of the muscular symptoms). The average age at death is forty-one years and sixty-three hundredths. They have then lived six months and a fraction. The average age of the women at the onset was thirty-eight years seven months; they lived an average of thirty-two months. * * * * The troubles of intelligence have assumed the form of *general mania* in nine cases, with or without furor.

They have assumed the form of a *profound melancholy* in six cases, the form of *ambitious delirium* complicated with *exaltation*

in *five* cases. In *six* cases the symptoms are manifest under the form of *demeney* complicated with variable and restrained delirious conceptions. In *nine* cases the intelligence was struck with impuissance or paralysis. Sometimes the expression of intellectual troubles has been more variable; in general, even this expression has not been uniform except in extreme demency. Chronic diffused periencephalitis, in the simple state, has never failed to show lesion of motion.

Embarrassment of speech has not been wanting in but one case of the thirty-seven. The *walk* was unsteady or almost impossible in all the cases we have cited. Weakness of the arms has been observed in twenty-three cases; nine patients presented spasmodic twitchings of the muscles of the face; three grinding of the teeth; several have had difficulty of swallowing food, and in passing urine.

Almost always the lesions of motion are manifested in the first times of the phlegmasia by the impossibility which these patients find of regulating the action of the muscular agents, of which the contractions are accomplished but by irregular efforts and without precision. At length, these same agents find themselves with still greater loss of power and this impuissance constitutes a true state of relative paralysis.

The modifications which are produced in the condition of the skin, respiratory functions, and digestive functions cannot be indicated in a satisfactory manner in a simple analytical table, for they are often varied from one day to another with the insane, with the subjects of ambitious delirium: we can say nevertheless in a general manner that general paralysis when announced by a violent maniacal exaltation is accompanied by heat of the skin, dryness of the tongue and lips, thirst, disgust for alimentary substances, accelerated pulse. It is almost always the same when the periencephalitis appears with a

violent ambitious delirium; but when the subjects resist the first shock of the phlegmasia, the thirst, and redness of the tongue disappear, the appetite is re-established, the pulse ceases to be accelerated, and then ceases the general lesion of function.

Paleness of the tongue, distaste for food, observed very frequently with the melancholic form of general paralysis, are almost always accompanied with coldness of the extremities, paleness, and weakened pulse. In the forms characterized by dementia the state of the intra-cranial nerve centers exercises but insignificant reactions upon the general functions: the tongue is moist, no thirst, the appetite either ordinary or voracious, digestion rapid, pulse natural.

The *cadaveric* alterations shown in the thirty-seven cases may be enumerated as follows: The substance of the cranial bones has been found colored red in a notable manner in ten cases; the vessels of the cerebral dura mater were injected in six cases. The cavities of the cerebral arachnoid contained serum in fifteen cases; false membranes in three cases; coagulated blood in one case.

The vascular net work of pia mater has been found more or less red and injected in thirty-one cases; infiltrated with pus in one case; infiltrated with serum in twenty cases; thickened in seven cases; marked by opaque lines in nine cases. It adheres with more or less tenacity in thirty-five cases.

The cortical substance situated at the periphery of the same hemispheres is remarkable for the degree of coloration, red, violet, rose, or by the degree of sanguinous injection in thirty-four cases. There was softening in fourteen cases; excess of resistance in five cases; atrophy in four cases.

The white substance which constitutes the greatest part of the cerebral mass was found injected with blood in twenty-three cases; too great firmness or induration in thirteen cases; too soft in three cases.

The thalami optici were remarkable for their intense redness in fourteen cases, orange or yellow in three cases; too hard in one case; too soft in one case.

The corpora striata offered tints of flesh color or violet in eighteen cases; orange in four; hardened in one case; softened in one.

The walls of the lateral ventricles were injected in four cases, covered with miliary granulations in five cases; bathed with serum in six cases; softened in two cases, hardened in two.

The *pia mater* of the cerebellum was colored and red, injected, in nine cases, slate color in one, adherent in twelve cases. The cortical substance colored red seventeen times, injected ten times, colored orange five times, softened eight times, hardened in one. The annular protuberance red or rose colored in its center in fourteen cases, orange in three cases, atrophied in one case, softened in one case, hardened in one case, in one case contained a small cicatrix.

The medulla oblongata presented coloration in eleven cases, a rusty tinge in one, was atrophied in one case, hardened in two cases, softened in one case, its proper membrane covered with fibrine once.

The spinal marrow was covered with depressions in one case, hardened in four cases, softened in one, colored or injected in four, soot color in one, covered with plastic coagulation in one case.

Twelve brains were examined with the microscope, without counting those cited in our corollaries. These examinations were made in one case where the delirium had presented the character of mania, two of melancholic delirium, one of ambitious delirium, three of demency with delirious conceptions, three simple demency, one where the patient was epileptic. It is difficult to represent in figures the alterations observed, *yet certain alterations were almost constant.*

Of these were infiltration of the cortical substance, its dis-integrated state, its sanguinous injection, its being dispersed with granular elements, sometimes upon the walls of the vessels, sometimes upon the surface of the great nerve cells; the state of injection of the vessels of the corpora striata; the presence of molecular granules and of little agminated cells in the midst of the gray substance in these same columns, the dilatation of the vessels of the cerebellum, of the annular protuberance, the formation of granular products upon the vessels or in the gray substance of these same regions; at length the dilatation of the vascular net work of the *pia mater*, its infiltration."

The relation of Progressive Locomotor Ataxia to General Paralysis, is interesting as a study, especially the relation of the respective lesions of motion observed; but this will render it necessary for me to present what I have omitted upon the functions of the spinal cord, etc.

In both diseases there is not so much *loss of muscular power as want of co-ordination*. When there is some support muscular power is great, thus the paralytic when lying upon his back can exercise the arms and legs with great freedom. It is not paralysis in the true sense. The ataxic seems to perform all muscular actions better than to co-ordinate them. When lying down or supported he seems to have often as much muscular power as ever he had, yet lacks power to co-ordinate his actions.

It is met with at about the same ages as general paralysis; affects males more frequently than females. Writers regard it also a condition into which some hereditary nervous state has been transformed: *i. e.* hereditary.

It may be distinguished from general paralysis by the walk, writing, and other muscular activity when the eyes are closed. The ataxic cannot turn suddenly around without becoming dizzy, he cannot stand with his feet close together, if his eyes are closed; not so with paralysis.

There may be blindness and deafness complete or partial, with one or both eyes, the same as with paralytics. The sensibility is affected, special and general, destroying what we have referred to as termed by Sir Charles Bell *muscular sense*, with other modifications of sensation. Sight is important to the ataxic: he can co-ordinate muscular action much better when vision is unimpaired; it is necessary for him to keep his eyes fixed in some cases, upon the lower extremities, otherwise he immediately falls. He cannot walk any great distance, cannot walk without the aid of support as a stick, gets easily tired—on the contrary the victim of general paralysis will frequently make long journeys, will endure muscular exertion that is surprising.

There is more disturbance of the functions of the organs within the pelvis in ataxia than with general paralysis, it coming on only in the third period with paralytics. Articulation is not affected, there is not the marked fibrillar contraction of muscles that is observed in general paralysis. Pupils are more generally contracted, one may be larger than the other, although it is not significant of ataxia. There is said to be dilatation of pupils when an attack of pain is experienced, with the ataxic.

A singular and apparently undescribed cause of locomotor ataxia is given by Dr. G. C. Lawrence, in *Chicago Med. Examiner*, March 15, 1873: *the motion of railroad trains*. He says his attention was first directed to it by the disproportionate and increasing number of railroad men to others, among his patients at the Hot Springs, Arkansas. He is satisfied the occupation holds some close relation to the disease as a cause.

We also noticed one or two other articles calling attention to this fact, stating that memory is first affected, vision and hearing in some cases, and lastly co-ordination of muscular action. The pelvic organs suffer.

We now bring our article to a close; many questions arising

we would be pleased to discuss but cannot for want of space. We hope this review of the subject will excite attention to this form of insanity so common, and induce those who observe cases to make records of all important facts calculated to throw light upon contested points, as the state of the pupil, the form of delirium, &c.

THE INSANITY OF JOHN SAMUEL BLACKBURN.

The evidence in this case, *State of Ohio vs. John S. Blackburn*, as presented at the trial in November, 1871, (upon an indictment alleging that upon the 20th of March, 1871, he murdered Mary Jane Lovell, by forcing down her wine containing Strychnia): and at the trial, in April, 1874, to determine the question of his sanity, was to the effect that Blackburn was a native of Virginia, in 1871 was 48 years old, was raised a farmer, had been a stock-raiser and trader for eight years. He was always considered a jovial, lively, active business man; elated with success but easily depressed by misfortunes.

About five years before the murder, as Blackburn himself informed me, he began leading an immoral, licentious life with the deceased. He stated to me that previous to this time his sexual passions had given him little trouble—were under his control, but that from this time to 1871, the girl absorbed his whole attention—he was unable to sever his connection with her—that she held him in her power. He stated that about the time of her death, in this respect, he underwent a radical change, suffered loss of sexual appetite, and up to April, 1874, the date of conversation with him, had no return of the passion.

He became changed in character and feeling and business capacity, some months, a year or more, before the date of the

alleged murder; but he says that during the five years preceding March, 1871, or during the existence of his erotic propensity, he "was not the man he was before."

Called on the part of the State, the evidence taken at previous trials having been put in my hands, I visited Chillicothe, April 13, of the present year. I was unacquainted with Blackburn, and from the unsatisfactory nature of the medical evidence, was much prejudiced against the theory of his insanity, believing that if insane he was still responsible, not conceiving it possible that one suffering from Melancholia, or Dementia, as testified by experts, could be so profoundly disordered in mind and so wholly irresponsible, and yet be able to write letters exhibiting no mental defect sixteen days before the alleged murder, the insanity dating back for months. Believing incoherency to be the character if not the essence of demency I could not understand how one so demented could be coherent. With these views and conclusions I visited him in jail, April 13, expecting to find that condition of mental depression peculiar to those who have suffered from dyspeptic troubles, the result of sexual excesses; believing that if any form of insanity existed that the evidence pointed to *general paralysis*.

It seemed singular, however, that if general paralysis was the form of disease that it had not been so declared in evidence, no medical witness having so diagnosed the condition in question.

Blackburn's father died insane, melancholic; previous to his death he had been confined several months in the asylum at Columbus, O. His chief complaint was that he would come to want. Mrs. Margaret Blackburn, his wife and mother of the prisoner, testified:

"We owned the farm we were on, and he bought one just as

he took ill. He used to think he would come to want; that was his constant notion after his mind was affected. He was perplexed about the deed of the second farm he bought, and acted strange about it.

"After his mind got wrong he said: 'Mother, I shall have to kill Henry.' She then sent Henry away for fear, but his father begged to have him back. Henry had cut his name on the fence: 'C. H. Blackburn. Forget me not.' My husband would go out every day and look at the name and cry over it. He used to think everybody ought to be in the asylum but himself, and he always insisted that I was crazy, and that he was not. He was always angry. He would lay down in bed and get up again the next minute. He would cry about his troubles but could never tell what they were. He was in this condition and finally died."

This statement of Mrs. Blackburn, concerning John's father, was fully confirmed by Drs. Wilson and Strain and numerous witnesses.

A sister of the prisoner was insane at the time of the trial, in April, who had an insane daughter. Cases were reported in other branches of the family but not upon direct evidence, these last cases were testified to by physicians who had treated them.

So much for *hereditary influence*. The question then naturally arose with some whether John, knowing the form of insanity of his father, had not tried to imitate it. We will let the evidence answer the question.

The alleged murder was committed the night of March 20, 1871; in July 1870, Dr. Wilson pronounced Blackburn insane and directed his removal to an asylum—without effect. John opposed his removal upon the ground that his father went to an asylum and died. In December of the same year, three months

previous to the death of Miss Lovell, Dr. Strain pronounced Blackburn insane and also advised his removal to an asylum. Mrs. Blackburn testified that during all this period she saw "John was going like his father."

Her evidence was: "John used to complain about his head. *He could not keep still*, but kept walking up and down, and I used to walk with him and try to calm him. He would come sometimes and sit down in a corner and cry. He would talk about his family starving. I told him no; that they were well enough, but he would not be satisfied. Sometimes he would be afraid to go home at night alone. He would take a handful of money out of his pocket and say: 'Look, my family will starve to death with all this money in my pocket.' He would come and bid me 'a long farewell, mother, you will never see me again,' I cannot tell how many times."

Dr. Wilson who had clearer views upon the nature of the case than any witness who testified of it, said upon the stand "John applied to me for advice in July, 1870; he had a sorrowful, dejected look, and told me he had been to Baltimore, the October before (*i. e.* 1869) and was taken sick at the stomach and with a pain in the back and right side of the head; sometimes he said it felt empty, then again as if there was water in it; I found his tongue coated, and *noticed twitching about the muscles of his face*; he seemed to be nervous; he also manifested a *hesitancy of speech*; he complained about his mind and said he was afraid he was going to lose it like his father did; I prescribed for him but he would not take the medicine regularly; his tongue was always coated." This evidence was given in November 1871. At the trial in April 1874, Dr. Wilson testified substantially the same. "He said: "Blackburn's disease is general paralysis." When asked to give Blackburn's symptoms he gave them as follows: "Pain in the head, com-

plained that it felt like a block of wood, or as if there was water in it. He has variableness of pupils—the right sometimes the largest, fibrillation of the tongue, tongue drawn to one side; a shuffling, unsteady gait, when he put his foot down it came down with a *thud*, twitching of muscles of the face.” He detailed the changes of character, difficulty of speech, melancholy, &c.

Dr. Wilson stated, as did many other witnesses, that Blackburn had the idea he could not buy anything even if he did have money. Blackburn said he “could not buy a loaf of bread if he had a million dollars.”

Dr. Johnson stated to me that he met him in Cincinnati, in December, 1870, that Blackburn had plenty of money, but declared he could not buy a ticket to go home. Johnson bought the ticket for him and with difficulty got him on the train. Blackburn believing he had not power to enter the train.

Wilson’s description of Blackburn’s walk gave a very correct idea of it, “slow, slovenly.” He said Blackburn would come down from his house upon the pavement front of it. Wilson lived where he could see him. Blackburn would stand and gaze upward into vacancy, sometimes hang over the horse rack front of the house. Blackburn complained in 1870 of a feeling of expansion, or something within the head was pressing outwards. Wilson was asked what the condition of Blackburn’s ears denoted. He replied congestion and a low grade of inflammation of the brain.

Blackburn’s ears were swollen, hot, red and very painful. On the 13th I entered his cell with his brother, Major Blackburn. Blood was running from the right ear, and a bloody puriform discharge from the left. The auricle was greatly increased in thickness. John had a sharp pointed oak stick which he run in the ear, and punctured it at a point near where the meatus

and ear are united. This relieved the swelling although several days afterward it was not entirely abated. The end of the nose was also congested. Wilson's idea was that this condition indicated the character of the changes within the head. He said there was "a gradual breaking down and weakening of his mental and physical faculties. I do not think he has capacity enough to reason against his delusion. He could not comprehend."

Blackburn constantly expressed fear of death—that he would never get well.

The evidence of Dr. Strain was: "called on me first in December 1870; complained of his head and right leg; when he put out his tongue it would go to the right side; his secretions were depraved, and his general condition bad; his mental condition was disturbed; he would suddenly break off talking as though he forgot; saw him in latter part of March (1871) and thought him worse physically and mentally; saw him in June and thought him better in body, but worse in mind; regard him as a monomaniac on the subject of want. Could not state the cause of his illness; believed that excessive sexual indulgence had something to do with it." This was Blackburn's opinion also.

Numerous witnesses testified to the change of character—from activity and energy he became apathetic, indifferent, torpid. Incapable of doing anything, he ran around crying, complaining of his head, saying his family would starve.

Two Chillicothe physicians testified to a difference in the size of the pupils, at that time, April, 1874. Dr. Graham, of Cincinnati, testified in November, 1871: "Blackburn's disease is *dementia*, a depression of all the faculties, he is morally insane, has no will to execute what his judgment tells him is right and proper to do, and on account of his mental and physical

condition, is an irresponsible being. Did not test his powers of calculation; did not test his memory or judgment."

Dr. Carson, at this time, said the disease was: *Melancholia*, partial dementia and some paralysis."

The Clinic*, Dec. 30, 1871, contains an article upon the case, by Dr. Carson. He reviews the main medical points. Dr. Carson says the examination made by Drs. Graham, Carey, Culbertson and himself give the following results:

"First, his physical, and second his mental condition. Countenance rather pale—tolerably full. Digestive organs: tongue much furred, and breath sometimes offensive—appetite variable but generally fair; bowels inclined to constipation. Circulation: heart healthy—pulse variable, at one time being 80 in a minute, at another 92, and still more frequent when his sister came in. All these figures were obtained during the same session. It was soft and not full. Lungs healthy—respiration calm—not counted. Nervous system: Size of head measured by its filling a hat of No. 7½; the cranial developement was good. Facial expression deficient, irregular movement of the two sides of the face; twitching of right side at times; some dropping at times on the right side. Sensibility to pain about the face, good.—Constant reference to pain on right side of the head. Sometimes all over head. Dr. Graham had made examination of Blackburn the day before my arrival, partly with an aesthesiometer and dynamometer, we repeated the examination jointly with the following results: 1st as to special senses; 2d as to general sensibility and motor power.

Hearing: difference of hearing distance being 4 inches less on right side.

Sight: right eye, vision blurred, imperfect at a distance, where

*Cincinnati, O., Edited by James T. Whittaker, M. D.

in left eye it was clear. Sensibility: Dr. G. thought that in his last two examinations instrumentally, there was defective sensibility on right side. My own observations on one of these occasions were not sufficient to convince me entirely on this point. By the dynamometer, the right arm was defective as compared with the left, though he was right-handed, and though his right biceps measured $11\frac{1}{2}$ inches, and his left, only $10\frac{1}{2}$. With neither arm was he able to move the index clear through the scale. With the right arm, the index, at several trials pointed at $63\frac{1}{2}$, or near it; with the left, 68 and 72 were reached. Dr. Waddle, called by the prosecution, tested the electro-contractility of the two sides, and found right side defective. At one time, I observed a general tremor with greater movement on left side. Tongue protruded to the right, always, at our last examinations.

It has varied, sometimes being protruded straight, but with tremulousness.

The temperature was taken on two occasions: the first time before breakfast, it was $98\frac{1}{2}$; the second time it was in the presence of Dr. Graham, and, as copied from his record, made after joint examination, it stood in mouth, by two counts; first, on right side, $101\frac{1}{2}$; second, on left side, $100\frac{1}{2}$. Axillary count; first, on right side, $99\frac{3}{4}$; second, on left $98\frac{1}{2}$. These latter figures were noted after dinner. We were interrupted by the officer calling for the prisoner to conduct him to the Court. Doctors Graham and Culbertson also noted unsteadiness of walk.

The mental phenomena observed were, in general, feeble concentration of attention on any subject, and abrupt transition to other subjects, or sudden silence, while in the midst of a train of thought; hesitancy of speech; sometimes an impeded articulation, though not so marked as the previous fact; memory judged defective by the non-recognition of me after an ab-

sence of a month; and sometimes he would say positively he could not recall certain events which were intimated to him; tests of his business judgment would lead him directly to one of his delusions, of which there were three; first, that his children were starving; he would beg with tears streaming down his cheeks that when we went out, we would give his children a dollar; and he would ask us for some old clothes for them. Any allusion to his family would bring tears in a moment to his eyes, and faltering to his eyes and speech, no matter when attempted. Second; he had the delusion that his money had no purchasing power; that 'he would starve to death with plenty of money in his pockets;' he would contrast his former control of money with his present inability to make use of it; would ask how I bought my watch, or my clothes, intimating no power to provide such things. Third, that his health would never be good again. *One phase of the depressing feeling was, that he had no pulse, that it had stopped beating, and insisting that it could not be felt.*"

Carson then considers the influence of the hereditary taint upon Blackburn, as predisposing to insanity: "We have, then, a predisposing cause in the hereditary taint. His age, also, becomes a predisposing cause, because it approaches that of his father's, and because it is a period of degenerative changes.

Exciting causes are conspicuous in the history of the individual. Probable excessive venery,—the maintenance of immoral relations with a woman, under circumstances of probable exposure to his own family and the general public, and failure in business—belong to the recognized exciting causes of insanity."

Blackburn had failed in business previous to this time.

Carson further says: "Next, we have not only the presumption of age as affirmative of degenerative tendencies; but we

have physical signs, as evincing those changes in progress. Impairment of special senses, and of general sensibility on the right side; of motor power in tongue and right arm; irregular movement of facial muscles and unsteadiness of gait; pain in the head, persistent for years; not only pain, but peculiar sensations, of water in the head; of its feeling like a block or log of wood; hesitancy of speech, which seemed more amnesic than ataxic—form a group of symptoms which taken together with the hereditary tendencies, afford a substantial physical basis for mental change.”

He then reviews the mental symptoms, and says;

“The theory of insanity, then, has this for its proof:

1st. Hereditary taint, with unquestioned transmission to other members of the family—both this and age being predisposing causes.

2d. Exciting causes, immoral habits, distress in business and consequent unusual nervous tension.

3d. Physical changes in the brain, which under the influence of the predisposing causes, might be considered a basis for mental change.

4th. Consistent physical and mental phenomena of concurrent and cumulative force.”

When at Chillicothe I made every possible effort to determine the true nature of this case and to obtain all information that could be gained. The physicians who had observed him for three years informed me that he had a very variable pulse—sometimes as low as 50. The jail physician and sheriff informed me that he was subject to “spells” of excitement. When I first visited him the sheriff informed me: “He is having one of his spells now—is very excited—walks and talks a good deal.” I inquired how often he had them. Was informed that at first, when he came to Chillicothe they were frequent,

but that he had had none then for several months. This began on the 10th, they said, it being the 13th when I made the inquiry.

In the last trial, in April 1874, Dr. Strain, who had treated Blackburn in 1870, said upon the stand: "I treated John, beginning in December, 1870. Said he was going to starve to death, and his family. Could not buy them anything if he had money. Complained of a great deal of pain about his head—there was derangement of the secretions. Pulse as low as 40 at one time and as high as 100. Could not sleep—tongue drawn to right side—bowels constipated—weight and fullness at the stomach.

Complained of right leg—was always dragging—would catch on everything he went to step over. Memory impaired. Never drank to excess—would cry when he came to my office, said his family were in want—could not send his children to school for want of clothes—were going all of the time and were well dressed. Cause of disease excessive sexual indulgence."

It may appear to the reader that the evidence of Dr. Wilson and of Mrs. Blackburn conflicts upon one point: he speaks of his torpid, apathetic, stupid condition—the melancholic state, while she mentions that John used to come to her house—would not be still—would keep moving—cried and complained, &c.

By investigating these points when at Chillicothe, talking both with Dr. W. and Mrs. B. I found that both stated only the truth. During the periods of excitement he had been very restless and at once went to his mother's where he would remain for hours—once over night.

The jail physician stated to me that a great portion of the time after Blackburn came into the jail his circulation was very feeble—extremities congested, covered with a cold sticky sweat.

My own examination of Blackburn was to this effect: I visited him twice in jail on April 13th, the last time remaining in

his cell some time. I spent an hour and a half with him on the 14th in the jail, and examined him with reference to his pulse, tongue and pupils several times afterwards.

As I have stated, when reaching Chillicothe I went at once to the jail, with Mr. Mayo, the gentlemanly Prosecutor of Ross county. As I entered the jail my ears were greeted by a mournful voice: "I shall never get well no more mother." "I used to be a good man before I got this disease in my head, didn't I mother?" John and his mother were alone in the cell. He was walking backwards and forwards, tears were running freely. He did not perceive me at first, but on turning to walk towards the door where I stood, observed me. Mr. Mayo was hunting the jailor, to admit me to the cell—during this time through the grating I talked with John, examined his pulse, eyes and tongue. He asked me to examine his ears. Both pupils were contracted until they were very small. The face and head were flushed, hot, while the hands were cold, and purple with congestion.—covered with a cold clammy sweat. The face was congested, indicated a high degree of cephalic congestion. I had observed his walk before he saw me and became satisfied as to its character, for being alone with his mother no motive was afforded to counterfeit any gait unnatural to him. After dark, this was about 4 o'clock, P. M., I returned with his brother to the jail, entered the cell and remained long enough to examine him thoroughly upon all points. He was greatly excited—walked all the time—I could scarcely fix his attention upon any subject. Major Blackburn at last commanded him to be still and directed him to answer such questions as I asked him. For a minute or two this quieted him—but not long. I inquired: "John, when you were taken, sick what troubled you first? where did you feel sick?" He replied "in my spine; I believe my spine is melted. Does the spine ever melt, doctor?"

I replied, John it is hardly probable your spine is melted, what makes you think so? He answered "I know it is melted by the way it feels."

He then began to cry—to talk about his family—about his head—asked me if I could give him something to relieve the pain, &c.

I asked him if he ever had cramps in the legs.

"No, but sometimes I draw all over."

"Doctor what makes my teeth grit so?" he asked. I had observed that every few minutes there would be apparently a spasmodic closure of the jaws and grinding of the teeth. The muscles of the face and scalp would contract—sometimes a general tremor as if he had a slight convulsion. He would be talking, this occurring he would make an effort as if to swallow—turn up the face—stop instantly and if he began again it was always upon some other subject.

By the aid of artificial light I examined the pupils; both were contracted more than was natural and more than I saw them at any period afterwards even during daylight. Holding a light close to the eyes the pupils would contract, then dilate, the right remaining the largest. This repeated in the morning of the next day gave not so marked results. Monday evening, the 13th, his walk was more unsteady than at any time afterwards. It was a peculiar, unsteady, shuffling gait—uncertain. At one time he tripped upon the level floor, fell against the wall and if it had not supported him he would have fallen.

The pain complained of in the head was located by him in the left side of the head.

The ears were both swollen, congested and very painful—the right much the worst of the two. Prisoner had in his hand a sharp pointed stick, a few inches long. He stated that he had "opened" his ear with it. Blood running from it I was

unable to determine as to whether there was effusion and that it escaped by the prisoner opening it or not, but concluded, the highly congested condition occurring with the period of excitement, that this determined the condition. The sheriff informed me he first noticed the trouble with the ears on the 10th, the day the period of excitement began. I agree with Dr. Wilson in this, that the erysipelatous condition indicated the character of the cerebral changes—the defective nutrition and changed circulation, that the congestion had modified nutrition and in this respect the condition was valuable as a pathognomic sign.

Drs. Carson and Graham testified that as a sign it had no value—when asked what it indicated, replied: a bad hygienic condition. Dr. Carson said: there is no condition of the ears peculiar to insanity. I believe the ears are sometimes deformed, of the insane. This however is very unsatisfactory as both of these physicians declared Blackburn had improved physically, but not mentally. Those having him under medical supervision testified to his improved physical state. The test with the dynamometer was indicative of returning vigor in the right arm or diminished force in the left, as there was less difference than at previous examinations. The congestive period passed off Monday night, the 13th, few traces remaining upon the 14th. The ears were still swollen and congested when I left Chillicothe, upon the night of the 17th.

The examination of Drs. Carson and Graham was made on the afternoon of the 16th. The voice of the patient was loud, harsh, discordant. His face was expressionless. He stated to me his head had troubled him for several years, that it began about the time he first experienced erotic propensities. I observed him closely during the trial, to determine if possible whether he would manifest any interest in the evidence. When the most important points were being presented he appeared in-

different and as unconcerned as if he was not the defendant. At one time when all were laughing he turned his head to one side, gazed with a quizzical, wondering look, as if to say he knew not what it meant. I went to him once when one important witness was detailing interesting points, addressed him, in order to call off his attention that I might see if he would manifest any impatience. He began at once to complain of his head, asked me if I could cure him and showed no interest whatever in the evidence.

On Tuesday afternoon and Wednesday, 14th and 15th, in the Court room I could detect no difference in the size of the pupils or but slight. They were less contracted than they had been Monday night in the jail. The court room was very light. There was not the mental or muscular agitation after Monday, that was observable that day.

On Tuesday, by an effort, I could cause B. to fix his attention, and at one time he talked very rational for half an hour. He displayed no mental disturbance during this period and made no reference to his delusions, as coming to want, starving, dying, &c.

I tried to determine if possible whether *jealousy* had entered as a constituent in determining a motive for the crime. This had been alleged as a probable cause of the murder. A letter written on March 4th, sixteen days before the death of Miss Lovell apparently indicates such motive. While he talked freely of the girl, during his lucid interval, said she had complete power over him, and detailed his trip the night of the 20th, I could not obtain the least intimation of any jealous feeling. He said the trip of that night seemed like a dream.

The letter referred to is as follows :

“RESPECTED FRIEND:—You will not allow me to call you anything else, will you? Oh, how different we both are to-day

from what we was this day one year ago as I was at your house to pay Huff some money. I have been within nine miles of the Cherokee Indians and God only knows when I may leave, but will be back in some week or ten days and then we will fix all of our troubles up or I hope so.

Now when I come do not do as you have been on some occasions treat me so indifferently but be as good as you once was; take me to your room without me having to ask you and then I will feel towards you. Put a letter in the postoffice for me and I will get it and say where you will be. I am writing part of this on the train and had to back it as I walked along. Now do not fail to be there. I am sorry I am so hurried. I am now in the postoffice and the train is moving. I felt bad last night thinking of you. I am one thousand miles from you but still you are fresh in my mind. Oh come back to me. Now say *yes*."

We must draw this to a close.

We regard the only condition that includes all the symptoms to be *general paralysis*, of *melancholic* form, and *dementia* the tendency and partial result.

Like multitudes of these cases, after entering upon the first period, or when scarcely emerging from the prodromic period, the disease has been arrested. The "spells" referred to are to my mind *congestive* periods—and John S. Blackburn may suffer a renewal of them at any time, in an intense form, destroying his life. He may *apparently* recover, *but never will*.

The two orders of symptoms, physical and mental, presented by Dr. Carson indicate, if they indicate anything, the early stage of general paralysis. *Melancholy* is only a designation of the predominant form of the mental phenomena—*dementia* only indicates the effects of the disease.

Blackburn's delusions are to some extent variable. He

would be considered by Crozant *now* a victim of ambitious mania. His conversation shows he believes himself the most successful trader, the most active, muscular man alive. He boasted Tuesday morning, 14th April, continually of his ability to out run, out jump or throw down any man. Yet this was always qualified by a mournful look and expression "if I could only get rid of this disease in my head."

A word as to his *responsibility*: as expressed by Dr. Wilson, he has not mental vigor enough to reason against his delusions—he is therefore insane—any act committed in the line of such delusions would not be criminal—but great difficulty would arise in any attempt to determine this fact, for three-fourths, at least, of the time there is such chaos and confusion of mind with him that he himself cannot sufficiently co-ordinate his ideas to enable him to conclude whether any act corresponds to his ideas or not.

It has been said the Ohio Supreme Court holds "knowledge of right and wrong" the test of responsibility. We do not from a careful study of the Ohio Reports, believe this to be true. In the *syllabus* to the Blackburn Case, 23d O. S. R. 146, it is said, and page 165, "the question is (the same as laid down in *Clark's case*, 12 Ohio, 494, foot note) and seems to us to embody the true rule, namely: was the accused a free agent in forming the purpose to kill? Was he at the time capable of judging whether *that act* was right or wrong? And did he know at the time that it was an offense against the laws of God and man?" (Welch J.)

Other cases than the Clark case might be cited where this question of "free will" has been held in Ohio, for to be a "free agent in forming a purpose" is to have freedom of will. The *will* is the supreme executive power of the mind and that power which *purposes*. Hence *intent*, purpose, all the result of *im-*

pulse or *desire*, acting to determine volition, pertains to the will—concerns free agency. All that relates in these indictments to *premeditation*, pertains to the reasoning faculties; intellect. The will may be directed by an impulse and intellect not be involved, as when an act is performed without premeditation, which reduces the grade of the offense, for he who kills in the heat of sudden impulse is not held responsible to the same degree as he who willfully, feloniously and with malice *prepense*, premeditation, commits an offense. Hence metaphysical considerations are the basis of these distinctions. Where there is knowledge of right and wrong but the will is paralyzed, and hence inability to refrain from doing an act, the Ohio Supreme Court holds it to be an irresponsible insane condition. See cases cited foot of page 155, 23 Ohio State Report.

Blackburn was tried as to the question of his sanity, was declared insane, and sent to Athens where he now is, in the Asylum.

The question to be determined at that trial was not the guilt of the defendant as alleged in the indictment, but under the act of March 31, 1874, O. L., whether the defendant had sufficient mental capacity to enable him to conduct a reasonable defense; to determine the question of his sanity at *that* time, April 14, 1874, and not whether sane or insane March 20, 1871, the time of the alleged murder.

He having been declared incompetent to conduct a rational defense and the evidence extending the condition back four years, or 8 months beyond the time of the alleged murder, would any Prosecuting Attorney, if the prisoner did recover, ever be willing to prosecute the case further? We think not. If a prisoner is incapacitated by reason of mental disease from conducting a defense to an indictment, such disease having existed previous to the commission of the crime alleged, will he

be held responsible for the act? Will a man whose brain has undergone the degenerations expressed by the mental and physical phenomena in Blackburn's case, be responsible for *any* act, *civil* or *criminal*—the act the result of delusion or not? We think not—for who can decide whether delusion is a motive to induce the act, when the prisoner can not explain his motives.

Extra copies of the reports of Dr. D. A. Morse, published by the Ohio State Medical Society, for the years 1873-4, may be obtained of the Author. They are:

DIPSOMANIA.....	52	pages.
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